Railway Age

Vol. 64. May 31, 1918 No. 22

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EDWARD A. SIMMONS, *Pres.* L. B. SHERMAN, *Vice-Pres.* HENRY LEE, *Vice-Pres. & Treas.* M. H. WIUM, *Secretary.*

CHICAGO: Transportation Building. **CLEVELAND: Citizens Building.** **WASHINGTON: Home Life Building.**

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The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.).

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EDITORIAL

Railway Age

Announcement is made elsewhere in this issue of the appointment of W. J. Cunningham, the James J. Hill professor of transportation of Harvard University, to take charge of statistics for the government Railroad Administration. Professor Cunningham has worked for a number of years on just the kind of problem that he will have to solve under the Railroad Administration. His practical work, of course, has not been on as large a scale as it will be now, but his study of operating statistics has been comprehensive for the entire country. Some years ago he devoted a considerable part of his time to working out a system of statistics to be used by the Union Pacific, and the Union Pacific's operating statistics are today among the simplest and most useful of any system in use in the United States. For the last few years, Professor Cunningham has been acting in an advisory capacity to James H. Hustis in his operation of the Boston & Maine. The system of statistics for the Boston & Maine had to be built pretty well from the ground up and the practical experience which Professor Cunningham had on the Boston & Maine should stand him in good stead now. At the same time that he was having this practical experience he was making a study of the system of statistics in use on all the roads of the country. He possesses that rare combination of the student and the practical man, which is so vitally needed if the operating statistics of all of the railroads which are under the jurisdiction of the director general are to be harmonized and yet kept in such shape as to meet the particular needs of each property and each organization. It is essential that a new manner of reporting statistics, no matter how good it is theoretically, shall not be adopted on any road before it is so well understood by the organization that the figures of the old system in use could be interpreted and carried on by the new system. Professor Cunningham's work on the Boston & Maine is of special value in this connection.

Standard Operating Statistics

Much uncertainty has attended all construction during the past two years. While this has been due primarily to the unsettled labor situation still the difficulty of securing the necessary materials for carrying on the work has been of hardly less importance. Before that time conditions were such that engineers when making plans for improvements could estimate closely the cost of work and the time necessary for doing it, basing their estimates on past experience. Contractors if invited to present bids on the projects also based their figures on past experience. Under the present conditions past performances have lost much of their value as measures of what may be expected in future operations. This is particularly true in building construction where materials of varied character are required. Such work calls for large quantities of cement, brick, steel and specialties. With the exception of cement and possibly brick, the demand for building materials exceeds the supply, and even if the materials can be purchased shipments are subject to embargoes, and consequently deliveries are uncertain. All this renders labor inefficient through the time lost in waiting for deliveries, and the constant changes necessary in the organization to take advantage of available supplies at the expense of a predetermined plan of operation. In the construction of the new car repair shops at Port Huron, Mich., described elsewhere in this issue, the Grand Trunk minimized the delays due to the material situation by utilizing large quantities of second hand materials of varied character salvaged from buildings wrecked in connection with the preparation of the site. This resulted in a considerable saving in expenditure which was, however, secondary in importance to the saving in time effected. While it is true that the conditions surrounding this project were more or less favorable the results obtained would suggest the importance of close studies of conditions when attempting building construction in order that the most may be made of already existing conditions.

Building Construction and Second Hand Material

One of the most interesting of the kaleidoscopic developments of the regime of federal railroad control is the announcement of the plan for the appointment of federal managers to take charge of the operation of the railroads reporting exclusively to the Railroad Administration and with no connections with the owners of the properties. It is entirely natural, perhaps, that Mr. McAdoo should desire to have an organization responsible to him alone rather than one consisting of men with a dual allegiance and many close observers of the trend of recent events in the railroad world have foreseen the necessity of drawing a sharp line of distinction between the officers of the government and the officers of the corporations. This necessity first became evident in the case of members of the director general's staff at Washington who were required to sever their corporate relations and the issues drawn between the railroad owners and the administration in connection with the negotiation of the compensation contract have demonstrated some strong reasons why there should be a similar separation in the case of operating officers. Comment on certain phases of the policy should perhaps be withheld until more is known of the administration selections for the positions of federal managers. The newspapers have been allowed to give forth the impression that the railroad presidents already have been summarily ousted, whereas the only definite statement on the subject has been an announcement that the men to be placed in charge of each property must be exclusive representatives of the Railroad Administration. It would be exceedingly unfortunate if the director general should find it necessary or advisable to dispense with the services of any large proportion of the best brains in the railroad business and it is understood that many presidents will be appointed federal managers, leaving the chairman or other officer as the representative of the corporation, while in case the president is a man who has been more closely identified with the financial and corporate policies of the company than with its operation he will be allowed to remain with the corporation and an operating officer will be appointed federal manager, in most cases the operating vice-president. This is on the theory that many of the functions formerly performed

Federal Managers for the Railroads

by the chief executive officer of a railroad have now been taken over by the Railroad Administration.

The Advance in Rates

THE *Railway Age* has probably printed more material on the reasons why railroad freight and passenger rates should be advanced than any other publication. Some of its editors, as well as scores of its contributors, by long practice have acquired a facility and a fluency in dealing with the subject which some of our good natured critics have occasionally characterized as the manifestations of a deep-seated habit.

But before the latest opportunity to indulge in a discussion of this familiar topic we find ourselves strangely at a loss. An increase in rates amounting to something like a billion dollars a year seems an appropriate subject for discussion, but we approach it with something like awe. Not at the magnitude of the sum, although a billion dollars is still big in the railroad business, because we have been accustomed to observing the operating expense accounts and are becoming inured to large figures. But we confess ourselves somewhat embarrassed by the magnitude of the proposition. We can hardly be expected to object to an increase in rates. Our views on that subject are well known. But we have been used to discussing reasons why rates should be advanced, proposals to advance rates, and occasionally a qualified permission to advance rates. An order to advance rates is rather novel.

Moreover, Mr. McAdoo's General Order No. 28 contains so many points of interest that we hardly know where to begin and the time allowed for discussion before it takes effect is so short. We have usually been allowed at least a year or two to develop the reasons why freight rates in a part of the United States should be advanced 5 per cent, 10 per cent or 15 per cent, and have then been allowed additional years in which to complain because only a part of the increase was allowed. Here we have a 25 per cent increase in freight rates, an increase of passenger fares to 3 cents a mile, an additional passage charge for parlor and sleeping car passengers, state rates supplanted by interstate rates and then raised, and the elimination of special reduced rates induced by competition, all rolled into one order, to become effective in less than three weeks in the case of passenger fares and in a month in the case of freight rates. We have not time even to warm up by urging the Interstate Commerce Commission not to suspend the tariffs. Before we could get a good start the thing will have been accomplished.

There is a finality about the order that is rather appalling to those who have kept in touch with rate advance proceedings in the past. Mr. McAdoo returns to his office after an absence of two months, including two or three weeks when he was confined to his home by illness, signs an order which is telegraphed to all parts of the United States on the same day, and turns to another large problem, or a problem which formerly would have been considered large, with every assurance that his order will take effect on the date set. Even the element of controversy which has enlivened the history of rate cases is to a large extent lacking. Undoubtedly there will be opposition and protests but their apparent futility creates some lack of interest. While protests are being made before the Interstate Commerce Commission the rates will be in effect, in the states even as in the nation.

It is all so easy that Mr. McAdoo does not hesitate to advance wages for the morning papers and rates for afternoon release and to precede them both by an order that soldiers and sailors may ride for one cent a mile. He knows in advance where the money is coming from. In this he has a great advantage over railroad executives who are sometimes accused of being lacking in vision. Many of them have known long in advance what ought to be done but they have not been able to pass so readily from the state of volition to that of action. One of the reasons why capital is timid is that capital usually has to pay the bill.

It seems unnecessary for the *Railway Age* to express its opinions of the director general's order. In the first place, what's the use? In the second place, we are already on record. For 10 or 12 years we have been pointing out the need for higher freight rates, why the passenger business should be placed on a self-sustaining basis and why the conflicts between state and interstate rate-making should be removed. It is coming about in a manner somewhat different from that which we had anticipated but we may at least congratulate Mr. McAdoo on his determination to place the railroads on a self-sustaining basis rather than yield to the suggestions that have been made from some quarters that any operating deficit be met indirectly by taxation.

Is the Amalgamation of Railway Associations Advisable?

THERE IS A LARGE NUMBER of railway associations. There are without question some which should be combined for the good of all concerned. However, with these exceptions, each of the organizations now existing fills a definite need, providing the channel through which the men in the particular department can exchange ideas and work together to improve methods and materials used in the service in which they are employed. In nearly all cases these societies are supported by railway men in their individual capacities, who join on their own initiative, pay their own dues and work in the associations largely on their own time. While some roads pay the annual dues of their men in these organizations and a large number pay their expenses to attend conventions, in the aggregate the money so spent by the roads is small in proportion to the benefits derived.

Before changing the present methods of organization of these societies, it is well to consider what they have accomplished under present methods in order to determine the effect which any change in these methods will have on the amount and character of the work done. In order to be specific, reference will be made to the American Railway Engineering Association for purpose of illustration as it is typical of the stronger and more efficient railway associations. This society was organized 20 years ago and now enrolls about 1,400 members, nearly all of whom are directly in railway service in the United States and Canada. No distinction is made between residents of the two countries, the president of the Association last year being J. G. Sullivan, chief engineer of the Western Lines of the Canadian Pacific and a resident of Winnipeg, Man. Membership is individual and voluntary without official designation from the roads. Work is done through committees which meet at frequent intervals and whose recommendations are subject to review and spirited discussion on the floor of the annual convention before acceptance by the Association. The reports and discussions are published in the annual proceedings which have become the standard book of reference in the libraries of railway officers concerned with engineering and maintenance of way problems. The recommended practices and standards of the association are also published in a manual, which is revised annually, to keep pace with the developments in practice and is in use throughout the English-speaking world. The Railroad Administration has already indicated its appreciation of the value of

the work done by this association by ordering a large number of copies of this manual. It is difficult to pick out specific work of any association for special mention. However, one of the most valuable lines of work has been with reference to the rail problem. As a result of the work of this committee changes have been made in specifications and mill practice which have played no small part in the improvement in the quality of the rails during the last few years. The committee on Stresses in Track is now engaged in an extensive study which bids fair to be of even greater value to the roads in determining the relations which exist between wheel loads and the different units of the track structure.

Work such as this can be done to best advantage only when men are working voluntarily because of their professional interest in the subject. The fundamental reason for the high grade of work done in most of these voluntary associations is the opportunity offered for individual initiative. It is for this reason that any amalgamation of these associations whereby they will lose their individual identities will do irreparable harm. When an organization becomes official in character, individual initiative in speech and action is checked while the incentive and loyalty to the individual organizations are removed.

The logical outcome of the consolidation of these associations will be that the members, particularly in the technical departments, will transfer their activities to other societies such as the American Society of Mechanical Engineers, the American Society of Civil Engineers, and the Western Society of Engineers, over which neither the railways or the director general have any control. This will be a return to the condition existing years ago before the formation of the railway organizations.

It has been stated that the director general has proposed the amalgamation of these associations in order that (1) he may have one central body to which he can turn to secure advice from the best talent in the railway industry, (2) he may limit participation in the preparation of principles and standards of recommended practice to those actually in the employ of the roads of the United States and (3) by giving this association an official character, he may have the means of making its recommendations binding on the roads. Referring to the first objective, it is not necessary to destroy the individual organizations to secure concerted action, for this can be accomplished by the co-ordination of activities through some central committee or board composed of representatives of these societies. The elimination of Canadian railway men and those in consulting practice, university professors, etc., would only deprive the societies of the benefits of the service and advice of these members with no positive gain. Likewise while the standards of design and practice prepared by the different organizations have been adopted wholly or in part by many but not all roads, and while the deviation from these standards on other roads has increased manufacturing costs, we do not believe that the enforced universal adoption of these standards is advisable, for it will tend to arrest, if not entirely stop, future development. The rapidity with which this development is occurring, largely as a result of united co-operative association work, is indicated by the fact that the American Railway Engineering Association revises its manual of standard practice yearly to keep it up to date.

The railway associations are willing and desirous of doing everything in their power to assist in the winning of the war. They have offered their services to the government in whatever way our country can use them. The railways are essential to our military activities. The railway associations have had much to do with the development of efficient practices. They should, therefore, be able to assist the government in the solution of the transportation problems now confronting it. We believe that this can be done best by co-ordinating the work of the associations in such way that there may be a minimum overlapping of work while at the same time providing for the freest play of initiative and individual incentive. The loss of interest and restriction of action which will necessarily follow the amalgamation of the organizations will far outweigh the disadvantages which now exist and most, if not all, of which can be eliminated by intelligent co-ordination.

New Books

The Elements of Railroad Engineering, by William G. Raymond, dean of the College of Applied Science, State University of Iowa, 5½ in. by 8½ in., bound in cloth, 453 pages, illustrated. Published by John Wiley & Sons, Inc., New York. Price, $4.

This is a revised third edition of the original volume published in 1908. The order and arrangement is the same as in the previous edition, the book being divided as before into three parts: "Permanent Way" which may be said to partake of the nature of a critical description of the roadway, track, structures, signals, etc.; "The Locomotive and Its Work" covering the principles of economic railway operation and its influence on railway location; and "Railroad Location, Construction and Betterment Surveys," which is an account of the methods of conducting the work rather than a mathematical treatment. The appendix on the location of the Knoxville, La Follette & Jellico Railroad by W. D. Taylor, covering 70 pages appears as in the original edition. The section on the locomotive has been largely revised and Chapter 10 on "Signaling" has been entirely rewritten. Chapter 23 on "Valuation," covering 22 pages, is an addition which has no counterpart in the original work, and which presents a review of the various problems involved and a statement of the opposing views presented in their solution.

A Bibliography of Municipal Utility Regulation and Municipal Ownership. By Don Lorenzo Stevens; 410 pages, 6 in. by 9 in. Bound in cloth. Published by Harvard University Press, Cambridge, Mass. Price $4.

Although this book does not cover strictly railroad regulation, the student of railway matters will find it of considerable value, for there are many things in public utility regulation that follow along the same lines as railroad regulation. The book has been compiled primarily for the business man with a view, of course, to its use by the student or general reader, and is arranged with that in mind. Each publication noticed has been read by the author of the book and his very brief notations concerning the character of the articles should prove of considerable assistance in the selection of material. The names quoted are taken primarily from articles in public utility, technical and other periodicals and the bibliography is completed to January 1, 1917. "It is believed," says the author in his preface, "that little of value on the subjects treated has been overlooked."

The bibliography covers works on gas, electric, water and traction utilities, but works in languages other than English are not included. Among the references are a number of articles which have appeared in the *Railway Age*. The bibliography is classified under the following heads: General Works; History of Utilities and of Regulation; Franchises; Public Service Commissions; Valuation; Rates; Taxation; Holding Companies and Municipal Ownership. A 30-page index also helps in placing articles. Like all the publications of the Harvard University Press the book is attractively gotten up, printed in a legible type and well arranged typographically.

Letters to the Editor

The Trespassing Evil

CHICAGO.

TO THE EDITOR:

Allow me to add a word to your interesting discussions in recent issues dealing with the trespassing evil. The appeal to legislators is pat and timely. Whether the patient efforts of railroad officers, in this direction, will bear much good, remains to be seen; but if teaching by example will do any good the railroads certainly ought to begin before long to penetrate the hides of the indifferent.

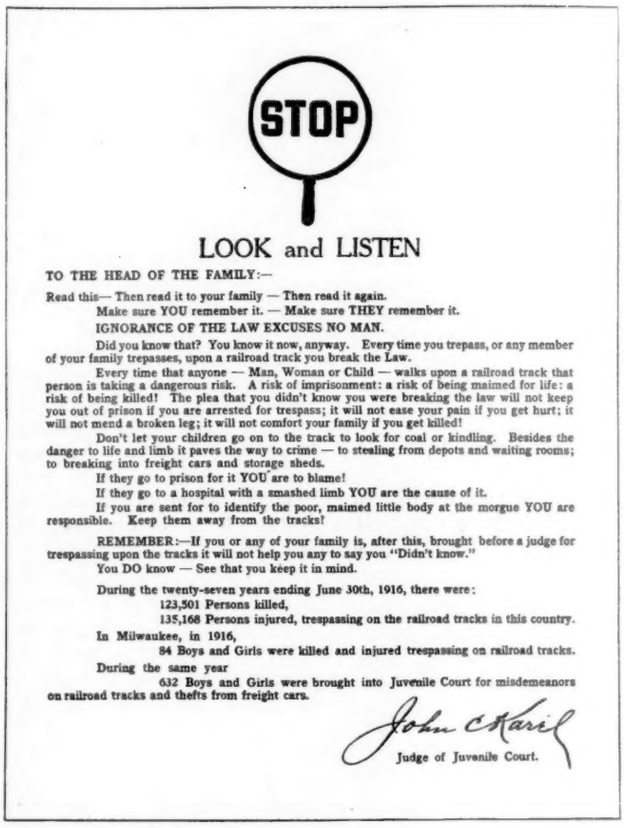
You speak of one prominent road on which the trespassing record was reduced by 19 per cent, and you refer to the lethargy and ignorance of local magistrates. It occurred to me to call your attention to the Chicago & North Western, which also has made a new record. It is on the Nrth Western, you know, that the "father" of safety-first on the railroads, R. C. Richards, has carried out safety ideas with a vigorous hand for a number of years past. The record of the

Bulletins Are Read by 4,500,000 Workmen Each Week
NATIONAL SAFETY COUNCIL, CHICAGO, ILL.
JUST AS LONELY AS HE LOOKS
The Boy Who Flipped Trains
This picture tells its own story. The crippled boy is just as lonely as he looks. He is not getting that exercise which might make him a strong, robust man, and next summer when the boys are playing ball he will be standing over on the sidewalk, just as lonely as you see him in this picture. What happened to him, or something worse, has happened to THIRTY-SEVEN THOUSAND SEVEN HUNDRED AND FOURTEEN other boys and girls under eighteen years of age who were walking on the tracks or flipping on the trains in this country during the last twenty-eight years—SO, KEEP OFF THE TRACKS!
Remember! It Is Better to Be Safe Than Crippled!

number of trespassers killed on the North Western in the year 1917 was 89 killed and 120 injured, as compared with 146 killed and 223 injured in the same length of time four years previously (1913).

This statement concerning the North Western only tends, of course, to strengthen what you have said about the good work done in the east. The other point that I wish to make is, in a way, a contradiction of what you say about the inefficiency of local magistrates; but a contradiction which everybody will be glad to hear of. Hon. John C. Karel, judge of the Juvenile Court in Milwaukee, Wis., is one of those judges who are an exception to the general statement which you have made. In a circular printed in four languages, all in large type and arranged with good taste, he appeals to heads of families to "STOP, LOOK AND LISTEN"! This circular, distributed broadcast among the householders of Milwaukee, is reproduced below, reduced about one-half in width and height:

Mr. Richards, to whom I have referred, is, as your readers know, one of the leaders in the National Safety Council, and he is to be credited with many of the good ideas which are spread throughout the country in the bulletins issued by the


STOP
LOOK and LISTEN
TO THE HEAD OF THE FAMILY:—
Read this— Then read it to your family — Then read it again.
Make sure YOU remember it. — Make sure THEY remember it.
IGNORANCE OF THE LAW EXCUSES NO MAN.
Did you know that? You know it now, anyway. Every time you trepass, or any member of your family trepasses, upon a railroad track you break the Law.
Every time that anyone — Man, Woman or Child — walks upon a railroad track that person is taking a dangerous risk. A risk of imprisonment: a risk of being maimed for life: a risk of being killed! The plea that you didn't know you were breaking the law will not keep you out of prison if you are arrested for trespass; it will not ease your pain if you get hurt; it will not mend a broken leg; it will not comfort your family if you get killed!
Don't let your children go on to the track to look for coal or kindling. Besides the danger to life and limb it paves the way to crime — to stealing from depots and waiting rooms; to breaking into freight cars and storage sheds.
If they go to prison for it YOU are to blame!
If they go to a hospital with a smashed limb YOU are the cause of it.
If you are sent for to identify the poor, maimed little body at the morgue YOU are responsible. Keep them away from the tracks!
REMEMBER:—If you or any of your family is, after this, brought before a judge for trespassing upon the tracks it will not help you any to say you "Didn't know."
You DO know — See that you keep it in mind.
During the twenty-seven years ending June 30th, 1916, there were:
123,501 Persons killed,
135,168 Persons injured, trespassing on the railroad tracks in this country.
In Milwaukee, in 1916,
84 Boys and Girls were killed and injured trespassing on railroad tracks.
During the same year
632 Boys and Girls were brought into Juvenile Court for misdemeanors on railroad tracks and thefts from freight cars.
John C Karel
Judge of Juvenile Court.

secretary of the Council. One of the latest bulletins issued in this campaign is devoted to the "boy who flipped trains." A copy of this circular is shown herewith; it tells a vivid story. The original is on a sheet 8½ in. by 11 in., and the three lines which are shown in the largest type are printed in red ink. This bulletin is issued by the Steam Railroad Section of the Council, headquarters, 208 So. La Salle Street, Chicago, and copies are furnished at cost price.

CHINORWEST.

VICTORIAN RAILWAYS DIAMOND JUBILEE.—The railways of Victoria are now in their diamond jubilee year; the first rule book was dated January 1, 1858, and the official opening of the first railway was on January 7, 1859.

PHILIPPINES HAVE 755 MILES OF RAILROAD.—According to the annual report of the Philippine public utility commissioner, the islands now have 755 miles of railroad under operation. Of this mileage, the Manila Railroad has 623.8 miles in operation and 5.3 miles under construction. A line 93.2 miles long is being projected from Calauag on the main line south to Baoo, the terminal of the Legaspi-Naga line. The Philippine Railway company has 131.7 miles of main line under operation.

Distribution of Additions and Betterments

An Analysis of Expenditures to Be Made on Improvements for Forty-nine Principal Lines

In order that a comprehensive idea might be obtained of the nature of the improvement work approved by the Railroad Administration, a compilation has been made from the budgets of 49 roads, having an aggregate mileage of 150,810 miles, showing the approved expenditures for several important items. These are shown by roads in the tables and the amounts are the sums of the expenditures chargeable to both capital and operating accounts.

A study of the distribution of the expenditures shows that the Railroad Administration has been particularly liberal in approving requests for items that will make possible an increase in the capacity of the railways. Of particular interest is the $81,383,935 which will be spent for increasing the yard tracks, sidings, etc., of the 49 roads in question and the $64,297,478 which will be spent for shop buildings, enginehouses, etc. In the latter item is included the cost of the shop machinery and tools which will be required to equip the new shops. Most of the $9,248,249 shown under the heading "shop machinery and tools" is for additions and betterments to existing shops. A generous amount ($32,708,392) has been granted 39 of these roads for improvements to existing rolling stock. This will increase materially the power and capacity of locomotives and permit of improving the freight cars.

The guiding principle in the consideration of all budgets has been to grant those expenditures which are necessary to help win the war. Approvals for projects which might be considered unessential to winning the war have been limited and made to cover, particularly on work that has already been started, amounts necessary to permit a cessation of the work without loss to the company. For instance, the Chicago Union Station Company was given $1,655,293 to bring the work that was in actual process of construction to a close without loss. Another case is that of the St. Paul electrification between Othello, Wash., and Seattle. In this case $5,417,000 was granted, as the work had progressed to such an extent that the railroad would suffer a severe loss if the work was summarily stopped. Ballasting is another item which has been held to a minimum, as it was believed that most of this could be left undone until after the war. The expenditures for bridges have been limited to the maintenance or renewal of present structures, rather than to new work. The item "freight and passenger stations" includes almost entirely expenditures for improvements in the handling of freight. Practically no money was permitted for passenger stations, except where it was inexpedient to discontinue new work on stations under construction.

The last column of one of the tables gives amounts for additions and betterments chargeable to operating expenses. These amounts added to those given in last week's issue on pages 1268-69, for the respective roads gives the sum total that will be spent for additions and betterments.

Important Projects Authorized

Of particular interest in the budget of the Baltimore & Ohio is the expenditure to be made for shop buildings, enginehouses, etc. The largest single item in this account is the shop and enginehouse at Glenwood, Pa., just outside of Pittsburgh. This shop will have a capacity of 40 to 50 locomotives per month. Over $1,300,000 has been appropriated for the shop and enginehouse at Cumberland, Md., and a new shop and enginehouse will be built at Youngstown, Ohio, at a cost of $740,000; an extension will be built to the shop and enginehouse at Washington, Ind., for $272,730; an enginehouse will be built at Grafton, W. Va., at a cost of $328,086 and the shop and enginehouse at Dayton, Ohio, will be rebuilt at a cost of $225,000. The bridge across the Allegheny river at Pittsburgh will be renewed at a total cost of $2,568,000, of which $500,000 will be required this year.

The Boston & Albany has received $750,000 for additional yard facilities, of which $200,000 will be spent at West Springfield, Mass., and $300,000 for a freight handling yard at Boston. A third track will be built between Athol Junction, Mass., and Springfield at a cost of $60,000.

A particularly large amount, $3,407,221, has been given the Boston & Maine for shop buildings, enginehouses, etc. This includes an enginehouse at Concord, N. H., costing $800,000; one at East Deerfield, Mass., costing $770,000; one at Lowell, Mass., costing $750,000; one at Dover, N. H., costing $275,000, and one at East Cambridge, Mass., costing $143,500.

The Chesapeake & Ohio will spend $470,000 for third track from Big Sandy Junction to Russell, Ky., and will also reduce grades from St. Albans, W. Va., to Ferrill at a cost of $403,596.

The Chicago & Eastern Illinois will build a new yard at Terre Haute, Ind., at a cost of $425,000, and additional yard facilities will be provided at Yard Center, Ill., and Clinton, Ind. Second track will be built from Salen Yards, Ill., to Brubaker at a cost of $124,000, and from Pana, Ill., to Dollville, at a cost of $192,000.

In addition to the amounts shown in the tables the Chicago, Burlington & Quincy has been granted $250,000 for improvements at the Hawthorne (Ill.) yard and an engine terminal costing $155,000 will be built at Eola, Ill.

The Chicago, Milwaukee & St. Paul was allowed $5,417,000 for the completion of the electrification between Othello, Wash., and Seattle. This was granted because a considerable loss would be entailed if the work were not completed. An expenditure of $680,000 was granted for the engine terminal at Savanna, Ill.; $601,870 for an engine terminal at Ottumwa Junction, Iowa, and $236,000 for a freight and engine terminal at Atkins. In addition to this $334,000 will be spent for the yard at Godfrey and $107,000 for the freight yard at Davenport, Iowa.

The Rock Island was granted nearly $1,000,000 for shop buildings, enginehouses, etc., which includes improvements at Herington, Kan.; Amarillo, Texas; Manley, Iowa, and Burr Oak, Ill. Over $1,000,000 will be spent for second track on this road.

The Cincinnati, New Orleans & Texas Pacific has been granted an expenditure of $3,960,000 for double track from Lexington, Ky., to St. John. Of this amount $2,300,000 is appropriated for 1918. This road will also build a new terminal yard at Danville, Ky., at a cost of $900,000.

The Cleveland, Cincinnati, Chicago & St. Louis has received $4,409,874 for additional main track, of which $2,000,000 will be spent for second track work on the Cleveland-Indianapolis division. Second track, 26 miles long, will also be built on the Chicago division at a cost of $1,658,000. A second track on the Columbus line will be built at a cost of $475,000. A yard will be built at Sharonville, Ohio, at a cost of $500,000. The expenditure of $710,419 for "shop buildings" includes engine terminals at Galion, Ohio; Sheff, Ind., and additions at various points.

The largest expenditure for the Erie is for shop buildings, enginehouses, etc., $2,382,156. This expenditure includes a 31-stall enginehouse and engine terminal facilities at Meadville, Pa., at an estimated cost of $411,191. New engine terminals will be built at Girard, Ohio, for $400,000, and at Avoca, East Buffalo and Dayton, N. Y. This road will reduce grades and construct second tracks between Steamburg, N. Y., and Falconer, a distance of 14 miles, at an estimated cost of $510,000 and between Jamestown, N. Y., and Lakewood at a cost of $135,000. Second track will also be laid in Akron, Ohio, at an estimated cost of $150,000, and between Sharon, Pa., and West Middlesex, a distance of eight miles, at an estimated cost of $375,000. This will give the Erie double track from Jersey City to Chicago. An expenditure of $351,000 will be made for grade reductions and elimination of grade crossings in Union City, Pa., tle Creek, Charlotte, and Lansing, Mich. The information regarding the Grand Trunk expenditures was not available for last week's issue. The total capital expense for additions and betterments amounts to $4,696,536, and capital expense for equipment is $5,876,842.

A large amount of second tracking will be done on the Great Northern, consisting mainly of $284,000 for second track between Long Lake, Minn., and Delano; $212,000 from Kandiychi, Minn., to Rennock; $309,000 from Camp Barrow to Breckenridge, Minn., and $121,000 from Surrey, N. D., to Minot. In addition to the amount shown in the table the Great Northern has been granted $300,000 for improvement to the coach yard and $270,000 for the freight terminal at St. Paul, and $650,000 has been allowed for a dock at Seattle, Wash.

The Hocking Valley will complete 27.9 miles of second

CLASSIFICATION OF EXPENDITURES FOR ADDITIONS AND BETTERMENTS

Road	Ballasting	Rails and other track material	Bridges, trestles and culverts	Additional main track	Additional yard tracks, sidings, etc.	Signals and interlocking plants	Road machinery and tools	Freight and passenger stations, etc.
Ala. Grt. So.	.....	.....	850,000	555,000	73,000	5,000	1,000	.....
Atch. Top. & Santa Fe*	.....	1,331,300	1,831,702	3,548,488	4,109,373	559,417	.....	.....
A. C. L.	.....	1,889,500	.....	11,000	750,500	34,500	15,400	382,928
Balt. & Ohio	105,000	2,684,931	2,367,736	1,968,864	3,211,226	323,978	.....	185,212
Bos. & Albany .....)	.....	635,000	648,100	60 000	750,000	69,400	.....	815,900
Bos. & Maine	.....	2,692,314	3,175,487	1,086.000	1,838,985	263,893	.....	176,713
B. R. & P.	105,918	154,687	.....	46,237	294,557	130,464	.....	22,856
Central of Ga.	273,586	915,969	.....	.....	178,091	82,675	2,500	19,164
Chesa. & Ohio	540,000	1,311,501	724,593	769,963	1,701,249	212,220	33,667	454,798
Chic. & Alton	148,350	547,600	.....	.....	247.774	.....	.....	20,000
C. & E. I.	180,000	480.000	377,890	217,800	1,143,723	.....	.....	4,500
C. & N. W.	661,558	2,870,840	3,257,280	.....	283,800	.....	.....	.....
C. B. & Q.	406,597	1,445,212	1,427,333	584,227	258,264	399,000	34,342	31,711
C. M. & St. P.	317,415	2,048,400	1,361,051	317,000	1,616,117	264,256	.....	222,216
C. R. I. & P.	602,322	2,451,780	1,013,471	1,397,900	1,511,631	61,917	167,562	369,157
C. N. O. & T. P.	.....	50,000	140,000	3,960,000	1.040.000	55.000	4,000	.....
C. C. C. & St. L.	.....	425,000	.....	4,409,874	2,832,518	68,700	21,877	111,024
Cumb. Valley	.....	158,740	.....	.....	4,808	4.598	450	55,200
D. & H.	.....	271,156	87,588	388,052	232,700	7,784	9,530	132,996
D. L. & W.	.....	520,013	.....	.....	41,732	.....	.....	148,219
D. M. & N.	.....	.....	66,790	.....	402,471	.....	.....	32,554
Erie	.....	531,788	.....	1,219,017	1.089,426	180,414	46,932	914,633
Grand Trunk	5,000	2,191,908	120,000	59,410	1,648.105	353,665	.....	252,796
G. H. & S. A.	90,556	917,770	389,520	357.891	81,377	9,500	.....	33,451
Great Nor.	500,000	1,274,000	855,000	1,517,000	1.809,000	450,000	.....	160,000
G. C. & S. F.	296,465	537,036	535,305	.....	516.978	25,301	.....	125,745
Hocking Val.	.....	127,000	97,000	1,283.027	1,009,601	.....	.....	9,711
Ill. Central	121,600	774,540	1,715,340	141,750	1,402,580	556,975	156,500	622,520
K. C. S.	237,338	263,297	388,343	207,947	.....	63,763	.....	135,676
K. C. S. Term.	.....	.....	.....	189.000	1,000	29,100	.....	53,600
L. E. & W.	10,000	72,000	69,800	.....	43,500	10,000	.....	45,000
Lehigh Val.	.....	722,602	628,364	454,000	939,353	250,548	.....	327,275
Long Island	.....	217,084	45,993	334,660	125,165	.....	3,186	110,738
Mahoning Coal	.....	91,000	11,000	.....	130,625	.....	.....	475
Mich. Central	478,850	2,800.000	491,700	.....	283,280	53,142	.....	304,475
M. St. P. & S. S. M.	150,000	227,112	548,579	.....	211.005	.....	.....	136,857
N. C. & St. L.	.....	.....	.....	.....	27,064	.....	.....	.....
N. Y. C.	432,000	7,908,678	1,198,942	1,324,385	6,150.500	2,079,123	134,400	1,617,100
N. Y. N. H. & H.	87,450	1,689,942	2,970,920	1,493,930	6,816.807	1,098,336	13,435	296,065
N. & W.	852.876	388,893	487,190	20,000	4,428,948	118,190	1,250	131,175
Nor. Pac.	.....	1,079,000	1,320,099	1,432,533	499,091	507,059	.....	112,518
Pa. West	570,400	6,215,200	4,628,111	3,405,500	7,540,422	124,864	26,186	842,483
Pa. East	60,000	1,423,608	8,692,016	10,738,269	16,107,650	686,702	95,203	2,029,591
Phila. & Read.*	.....	1,356,026	2,654,235	2,508,074	2,264,649	1,018,692	.....	.....
St. L. & S. F.	351,994	1,192,654	865,938	.....	2,482,122	171,616	4,400	224,658
Southern*	.....	3,090,000	2,662,543	4,500,000	1,814,501	343.392	.....	.....
Sou. Pac.	306,804	2,918,345	369,755	247,306	1,300,428	45,482	.....	320,030
Union Pac. System	74,528	3,956,074	884,454	98,500	79,643	139,953	3,900	25,200
U. P. Term. Improvements*	.....	.....	.....	.....	.....	.....	.....	.....
Y. & M. V.	.....	1,010,446	740,988	356,000	58,600	133,450	.....	130,000
Total	7,966,607	65,859,946	50,080,156	51,207,704	81,383,955	10,992,069	775,720	12,146,919

*Amounts for all items were not available.

and a modern car dumper will be built at Buffalo at an expenditure of $406,000. A scrap reclaiming plant will be built at Meadville at a cost of $95,000.

The Grand Trunk has an appropriation of $1,648,105 for yard improvements, which includes new classification yards at Port Huron, Mich., for $400,000; at Nichols, Mich., for $203,000 and at Thornton Junction, Ill., for $450,000. The $1,058,609 for shop buildings, enginehouses, etc., includes a 15-stall roundhouse at Pontiac, Mich., and improvements at West Bethel, Me., Battle Creek, Mich., and Fort Gratiot. A substantial expenditure is made for signals which includes new automatic block signals in Maine; from Granger, Ind., to Port Huron, Mich., and from Detroit to Durand, Mich. New interlocking work will be done at Batmain track between Delaware, Ohio, and Cummings, at a cost of $1,260,000, and additional yard tracks will be built at Walbridge, Ohio, for $303,000, and at Parsons, Ohio, for $120,000. The mechanical facilities at various points throughout the system will be improved, $409,296 being appropriated for this purpose.

The Illinois Central was given $2,345,170 for shop buildings, enginehouses, etc., which will be used to improve the mechanical facilities at Kankakee, Ill.; Clinton, Ill.; Mattoon, Ill.; Freeport, Ill.; Waterloo, Iowa; Jackson, Tenn.; McComb, Miss.; Champaign, Ill.; DuQuoin, Ill.; Benton, Ill.; Carbondale, Ill.; Mounds, Ill.; Amboy, Ill.; Fulton, Ky.; Paducah, Ky., and Central City, Ill. Over $500,000 is to be expended for signals, which includes the equipping of

44 miles of single track and 15 miles of double track, and an interlocking plant to be built at Ramsey, Ill. In addition to this $1,000,000 has been allowed for a new yard and terminal at Markham, Ill. This amount is not included in the tables.

The Lake Erie & Western has been given over $800,000 for shop buildings and enginehouses, of which $500,000 will be for a locomotive repair shop at Tipton, Ind.; $158,200 for rebuilding the enginehouse at Lima, Ohio, and $79,200 for rebuilding the enginehouse at Peru, Ind.

The largest item of expense in the budget of the Lehigh Valley is for $2,514,114 to be spent for shop buildings, enginehouses, etc. A new engine terminal is to be built at Hazleton, Pa., at an estimated cost of $1,000,000 and a new engine terminal will be built at Jersey City at a total cost of $1,400,000, of which $900,000 has been appropriated for gan City, Ind. Additional shop facilities will be provided at a cost of $335,000, and a new steel car repair shop will be built at West Detroit at a cost of $210,000. The drawbridge over River Rouge, Detroit, will be renewed at a cost of $200,000.

One of the largest individual items for the New York Central is $7,707,600 for shop buildings, enginehouses, etc. This includes a car repair shop at Avis, Pa., for $746,000; new engine terminal facilities at Watertown, N. Y., for $700,000; a new enginehouse at Syracuse, N. Y., for $540,000; additions to the car repair shops at East Buffalo for $520,000; an addition to the erecting shop at Collinwood, Ohio, for $345,000; a new enginehouse at Genesee, N. Y., for $200,000; a car repair shop at New Durham, N. J., for $198,000; a new enginehouse at DeWitt, N. Y., and additions to the enginehouses at Norwood, N. Y., Clearfield, Pa.,

CLASSIFICATION OF EXPENDITURES FOR ADDITIONS AND BETTERMENTS

Road	Fuel stations, etc.	Water stations and appurtenances	Shop buildings, enginehouses, etc.	Shop machinery and tools	Electric power plants	Wharves, grain elevators storage warehouses, etc.	Improvements to existing equipment	A and B expenditures chargeable to operating expenses
Ala. Grt. So.	6,000	30,000	4,000	4,000	.....	.....	.....	7,173
Atch. Top. & Santa Fe*	.....	.....	712,365	468,973	.....	.....	.....	.....
A. C. L.	50,100	43,300	101,648	.....	.....	.....	430,667	1,248,613
Balt. & Ohio	70,531	163,864	5,981,950	645,270	.....	1,051,161	1,626,373	4,093,858
Bos. & Albany	.....	47,900	47,900	.....	.....	.....	.....	1,095,600
Bos. & Maine	77,197	52,680	3,407,221	22,914	278,382	1,812	2,633,692	4,525,265
B. R. & P.	.....	11,125	779,959	197,960	.....	.....	313,649	229,543
Central of Ga.	35,760	34,497	143,599	3,749	.....	.....	167,000	697,642
Chesa. & Ohio	248,781	346,159	780,513	368,050	86,898	73,963	1,255,539	2,106,822
Chic. & Alton	.....	25,000	185,000	.....	.....	.....	65,624	518,585
C. & E. I.	.....	.....	181,367	.....	.....	.....	954,061	542,105
C. & N. W.	.....	180,530	1,119,063	199,126	.....	657,805	.....	3,282,770
C. B. & Q.	162,246	295,034	176,671	.....	.....	.....	550,878	2,280,836
C. M. & St. P.	128,685	344,334	1,969,370	448,200	.....	70,272	1,230,184	2,692,206
C. R. I. & P.	577,500		945,627	354,266	.....	58,064	1,810,475	3,280,387
C. N. O. & T. P.	.....	32,000	30,000	6,500	.....	.....	.....	146,362
C. C. C. & St. L.	.....	117,747	710,419	70,750	.....	.....	996,838	835,077
Cumb. Valley	.....	1,111	742	488	.....	.....	.....	129,442
D. & H.	26,991	16,996	90,307	30,304	25,628	.....	732,168	230,331
D. L. & W.	.....	37,557	308,102	24,775	153,901	91,000	419,369	814,527
D. M. & N.	.....	7,954	186,155	.....	.....	1,349,390	10,500	58,777
Erie	518,192	114,081	2,382,156	.....	.....	660,342	677,793	1,175,839
Grand Trunk	22,500	49,599	1,058,609	128,314	.....	666,000	20,391	1,859,370
Great Nor.	.....	200,000	539,000	.....	.....	500,000	432,531	3,080,400
G. C. & S. F.	213,982		109,923	17,106	.....	.....	6,855	293,746
G. H. & S. A.	71,901	140,464	.....	5,110	.....	.....	66,305	823,661
Hocking Val.	345,927	.....	490,296	106,756	.....	.....	351,522	193,000
Ill. Central	.....	401,120	2,345,170	537,932	.....	.....	1,471,823	2,303,655
K. C. S.	3,020	7,212	17,420	97,347	.....	.....	1,217,447	451,698
K. C. S. Term.	.....	.....	.....	41,130	41,300	.....	4,300	.....
L. E. & W.	15,500	31,000	800,500	20,200	.....	.....	73,840	73,200
Lehigh Val.	88,760	157,781	2,514,114	230,538	103,140	27,665	669,472	1,672,588
Long Island	17,000	22,756	92,449	57,753	2,363	1,600	137,252	153,311
Mahoning Coal	1,400	28,100	787,400	.....	.....	.....	.....	3,300
Mich. Central	126,000	130,800	2,231,080	192,098	.....	113,000	443,035	2,732,200
M. St. P. & S. S. M.	21,104	29,000	110,650	33,675	.....	.....	186,770	416,752
N. C. & St. L.	86,733	.....	357,363	56,000	.....	.....	151,067	317,098
N. Y. C.	251,000	438,068	7,707,600	651,800	2,238,025	59,450	6,235,237	10,239,939
N. Y. N. H. & H.	181,240	22,593	1,486,389	469,974	952,420	480,871	1,793,036	5,092,649
N. & W.	55,840	225,527	1,082,638	275,000	807,500	407,000	1,261,301	1,007,270
Nor. Pac.	22,000	48,161	950,000	120,000	.....	.....	1,116,170	2,034,945
Pa. West	169,080	107,281	7,464,754	459,960	5,500	11,800	1,187,102	9,515,693
Pa. East	236,378		3,780,466	1,250,000	.....	2,274,983	.....	14,162,224
Phila. & Read.*	.....	.....	4,609,108	.....	.....	.....	.....	.....
St. L. & S. F.	107,566	438,956	699,150	207,141	7,530	3,532	1,139,944	1,645,697
Southern*	.....	.....	182,696	45,000	.....	.....	.....	.....
Sou. Pac.	54,635	717,671	608,964	73,555	38,771	55,205	507,762	3,844,415
Union Pac. System	133,830		41,134	448,475	.....	165,000	343,898	.....
U. P. Term Improvements*	285,000	.....	3,811,000	835,040	.....	.....	.....	.....
Y. & M. V.	.....	.....	175,471	43,020	.....	.....	16,513	754,823
Total	3,250,689	5,093,958	64,297,478	9,248,249	4,741,350	8,779,915	32,708,392	92,663,384

*Amounts for all items were not available.

1918. A new classification yard will be built at East Waverly, N. Y., which will eventually cost $2,000,000, and of which $350,000 has been appropriated for this year. A new freight terminal will be built at Greenville, Jersey City, consisting of a warehouse, steamship terminal, 10 piers, yard facilities, storage space, grain elevators, etc., at a total cost of $15,000,000, of which $200,000 has been appropriated this year. An amount of $75,000 has also been approved in addition to that shown in the table for the building of a barge canal terminal.

The Michigan Central will make an expenditure of $2,231,080 for shop buildings, enginehouses, etc., which includes new engine terminals at Jackson, Mich., and Michigan and Cherry Tree, Pa. Change of grade and alinement will be made at Tonawanda, N. Y., incident to the barge canal, at an expense of $1,242,500, the work now being under way. A new yard will be built at Depew, N. Y., at a cost of $484,000. Additional tracks into the Syracuse yard will be laid at $340,000. Extensions will be made to the yard at Elkhart, Ind., at a cost of $224,000; storage and repair tracks will be built at Harmon, N. Y., and a yard at White Plains, N. Y., at a cost of $241,000. An extensive program has been submitted for signals; $2,079,123 will be spent. This includes renewal of the interlocking plant at Rochester, N. Y., at a cost of $271,200, renewal of the signal system between Little Falls, N. Y., and Fonda at a cost of $261,000

and a new interlocking plant at Syracuse Junction at a cost of $224,000. In addition to the amount shown in the table $1,918,400 has been approved for the Grand Central Terminal and $2,000,000 has been approved for new terminal facilities at Cleveland, Ohio.

Particularly Liberal with New Haven

The Railroad Administration has been particularly liberal with the New York, New Haven & Hartford, that being one of the roads that needs a large number of improvements. The shops and enginehouses will be improved generally for handling heavy power, particularly the Santa Fe type locomotives which that road has received. Fifteen stalls will be added to the enginehouse at East Hartford, 10 stalls to the Medway enginehouse on the New London division and seven stalls to the Waterbury (Conn.) enginehouse. Automatic block signals will be installed between Hopewell Junction, N. Y., and West Pawling, N. Y., and interlocking and track changes will be made for the junction with the New York Connecting Railway at Port Morris, N. Y.

The Norfolk & Western will spend $879,000 for the Roanoke (Va.) yards; $590,000 for the Hagerstown (Md.) yards and $565,000 for improvements in the Bristol (Va.) yards. In addition to this an additional new shop building will be constructed at Roanoke at a cost of $575,000 and $222,634 has been appropriated for the shop building at Shenandoah, Va., which is under way.

The principal feature of the Northern Pacific budget is a new car and locomotive shop at Mandan, N. D., towards which $500,000 has been appropriated. A new car repair shop will be built in the Como yards near St. Paul at a cost of $250,000. Seven and a half miles of second main track will be constructed between Laurel, Mont., and Park City at a cost of $137,231, and between Livingston, Mont., and Mission, 5½ miles, at a cost of $112,184.

With about $700,000 for shops the St. Louis & San Francisco will improve mechanical facilities at a large number of its repair points.

The expenditure of $4,609,108 for shop buildings, enginehouses, etc., on the Philadelphia & Reading will include new engine terminal facilities at Reading, Pa., costing $355,000; a new addition to the enginehouse at St. Clair, Pa., costing $92,000; a new extension to the shops at Reading, costing $255,000; a new engine terminal at Tamaqua, Pa., costing $200,000; new engine facilities at Chester, Pa., $140,000; new engine facilities at Coatesville, Pa., costing $440,000; a new enginehouse and machine shop at Rutherford, Pa., costing $145,000, and $157,172 for engine facilities at Reading, which are 49 per cent completed.

$6,000,000 for Union Pacific Terminals

The Union Pacific will spend over $6,000,000 on terminal improvements, divided as follows: Cheyenne, Wyo., $1,689,425; Council Bluffs, Iowa, $1,647,351; Junction City, Kans., $1,175,007; Green River, Wyo., $919,674; Omaha, Neb., $535,026; Sidney, Neb., $158,935; Grand Island, Neb., $43,100; North Platte, Neb., $25,200; Ellis, Kans., $9,000. At Cheyenne a machine shop will be built costing $1,276,500. At Council Bluffs $440,000 will be expended for a 40-stall enginehouse, $293,000 for a power house, $235,000 for a machine, boiler and blacksmith shop and $175,000 for a 600-ton coaling station. At Junction City a machine, boiler and smith shop will be built at a cost of $270,000, a 20-stall enginehouse at a cost of $240,000 and a 400-ton coaling station at a cost of $110,000. The improvements at Green River include a 28-stall enginehouse costing $280,000, a machine, boiler and smith shop costing $235,000, a car repair shop costing $85,000 and a storehouse costing $68,000. At Omaha, Neb., an extension to the machine shop will be built at a cost of $245,000. Over $800,000 will be spent for machine tools for the various shops in this program.

Conservation in Use of Locomotive Supplies*

By W. J. Tollerton
General Mechanical Superintendent, Rock Island Lines

THE COST OF LOCOMOTIVE SUPPLIES has increased greatly during the past several years. A few years ago 25 cents per 1,000 locomotive miles was considered a fair average cost for this item of operating expenses, whereas during the fiscal year ended December 31, 1917, the average cost per 1,000 locomotive miles was $1.80, an increase of 620 per cent.

Locomotive supplies include, among other items, scoops, torches, brooms, chisels, globes, lanterns, hammers, wrenches, oil cans, oilers, coal picks, buckets, ropes, chains, signal lamps, flags and torpedoes.

During 1917 we issued, as an average, 9 oil cans per locomotive owned, over 1 tank bucket, 6 straight and long spout oilers, 2 dope pails, 2 torches, 1 water cooler, 2 tallow pots and 3 cups and dippers. With proper care, the life of all of these and many other items of locomotive supplies should be indefinite. Therefore, the quantity used during 1917 was excessive and would indicate these supplies are not receiving careful handling.

In addition to being difficult to obtain from the manufacturers, the cost of locomotive supplies is constantly increasing. Cotton duck has increased 220 per cent in price, brooms 140 per cent, files 125 per cent, air hose 50 per cent, lanterns 35 per cent, scoops 88 per cent, torpedoes 55 per cent and tinware 35 per cent, with practically no increase in freight and passenger rates. Therefore, inasmuch as transportation is the only commodity which the railroad company has for sale, the strictest possible economy must be practiced.

Care should be exercised to insure obtaining the maximum life out of each item of locomotive supplies and no new supplies should be drawn until absolutely necessary. When new tools or supplies are drawn from the storeroom, the old material should be turned in. A little soldering may reclaim an oil can, oiler, lantern or torch, a new handle may reclaim a scoop. To illustrate the extreme importance of conserving in the use of locomotive supplies, each item saved is equivalent to the gross revenue earned by the company for transporting a ton of freight the following distance:

½-gal. oil can	30 miles
Tallow pot	34 miles
1-gal. oil can	40 miles
Torch	50 miles
Tank bucket	60 miles
Long spout oiler	64 miles
2-gal. oil can	73 miles
3-gal. oil can	83 miles
5-gal. oil can	120 miles
Scoop	143 miles
Water cooler	636 miles

With the hearty co-operation and support of all concerned, there is no question but that a noticeable reduction can be effected in the cost of locomotive supplies, and it is with that end in view that the assistance of all employees is earnestly solicited.

*From the Rock Island Employees' Magazine.

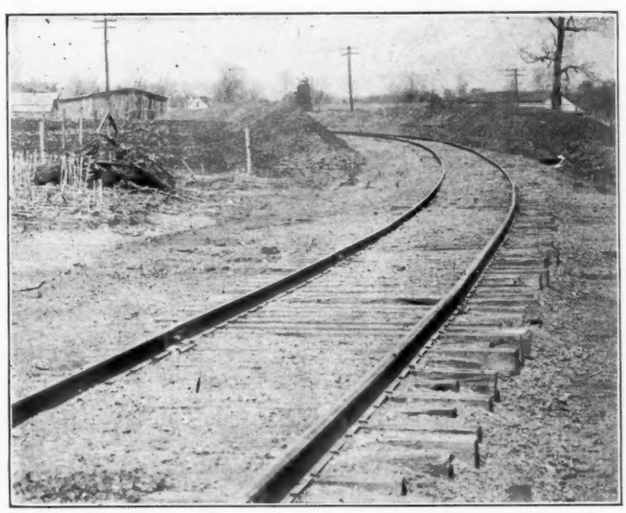
MECHANICAL LABOR-SAVERS ON FRENCH RAILWAY.—Le Genie Civil says that the Orleans Railway, feeling the shortage of labor, has successfully adopted mechanical cleaning devices both for railway cars and hired cabs, in addition to vacuum cleaners. Various forms of revolving brushes driven at a speed of from 500 to 800 r. p. m., through flexible shafts by electric motors of ⅓ to ½ h. p., are employed, the apparatus as a whole being slung, according to requirements, from various kinds of portable attachments, with the aid of springs and counterweights.

Two Tractor-Drawn Grading Outfits at Work.

Building a Seven-Mile Railroad in 32 Days' Time

Unusually Large Force Is Employed to Complete a Short Spur in Time for Important Government Service

TEAM WORK BY A LOYAL organization in which each man knew what was expected of him and did his part to the best of his ability, was the most important factor in the construction of 7.1 miles of railroad in 32 days. This record was made by the construction forces of the Nashville, Chattanooga & St. Louis and the Mason & Hanger Contracting Company to provide rail communication for the Old Hickory powder plant now under construction in Hadley's bend of the Cumberland river, some 12 miles from Nashville, Tenn. The railroad's permanent force, which was gathered from other work in progress on that road, was enlarged many times by men picked up



A View of a Part of the Completed Line

by the railroad and by the contractor, wherever they could be found, but the success of this feat depended not only on the effectiveness in which the rapidly built organization was directed, but also on the rapidity with which materials and equipment were collected from various parts of the system and despatched to the scene of activity.

This line is not a part of the Nashville, Chattanooga & St. Louis, but is the property of the United States Government and is being finished and double tracked by Mason & Hanger, general contractors for the powder plant. The railroad's unique position in the role of a railroad contractor is accounted for by the proximity of its Lebanon branch to the plant in question, by the fact that it had an organization ready to do the work and because John Howe Peyton, president of the Nashville, Chattanooga & St. Louis, realized the opportunity for the road to do the country a real service and tendered the good offices of his company to that purpose. Following negotiations during January, the road was authorized on January 31 to prepare surveys, and seven days later, on February 6, the government's representative authorized the work and expressed a desire to see it completed in 30 days.

The location of this work is of interest. The Lebanon branch of the Nashville, Chattanooga & St. Louis and the Tennessee Central occupy approximately parallel locations in a direction almost due east from Nashville, the former to the south of the latter. The Cumberland river lies just to the north of these railroads, but winds its way westward through a succession of horseshoe curves which form large peninsulas projecting alternately to the north and to the south. The new powder plant occupies a large tract of land at the north end of one of these peninsulas on the south side of the river in what is known as Hadley's bend. The distance from the yard at the plant to a connection with the two railroads is roughly seven miles.

The intervening country is rolling, entailing considerable earthwork and no small amount of skill in locating either the most economical line or the one capable of the quickest construction. The character of the line was governed to a large extent by the nature of the traffic which has already attained a movement of 450 cars per day in construction materials and supplies. The maximum traffic which will exceed this figure will be reached about the middle of September when supplies must be handled for both the initial production operations and the final construction activities. At present the traffic is practically all inbound, but even after the operating traffic has replaced the movement of construction materials, the bulk of the tonnage will be inbound, i. e., raw materials for the manufacture of explosives —sodium nitrate, cotton, sulphur, and also about 2,600 tons of coal daily.

In view of this, it was deemed desirable to have a 0.5 per cent maximum grade against inbound traffic, whereas short reaches of 1.5 per cent grades were considered satisfactory for the outbound movement, so for the sake of speed in construction it was decided first to build a line having a maximum of 1.5 per cent grades in both directions, this to be used later as an outbound line when a second track could be finished having not more than 0.5 per cent grades against inbound movements.

Unfortunately the first 1½ miles of this line was by far the most difficult, involving a trestle 2,000 ft. long and a

rock cut of 23,000 cu. yd. close to the main line connection, so after building 700 ft. of this trestle it was concluded that better progress could be made by building a temporary detour line on a 2-per cent grade as far as station 82, this line to be abandoned after a double track line with 0.5-per cent grades could be built from station 0.0 to station 82 on the final location.

Prosecution of the Work

The government representatives estimated that a day's delay in the completion of the line represented a loss of $50,000. As a result, speed in construction progress overbalanced any other consideration. For this reason some of the methods resorted to in pushing the work to the utmost would be considered wasteful under almost any other conditions. Although the burden of pushing the work through was largly on the railroad, the work was more or less divided between the road and Mason & Hanger, the contractors. The railroad completed all the grading and trestle work from the connection with his track to the government property line, 4½ miles, while the contractor did equivalent work north of that point, but the railroad completed all of the track lying on the first main line with its own forces for the entire 7.1 miles to the throat of the powder plant yard.

The initiation of emergency work such as this entails the employment of a great many men and before the project was completed the railroad was employing 3,000 men on the 4½ miles of line. Fortunately plenty of men were available, largely because the extremely cold weather had delayed spring work on the farms. The close proximity of Nashville was also of an advantage since a large part of the force was recruited there, although labor agents at Paducah, Ky., and Memphis, Tenn., supplied large numbers. The nearness of the large city was also of advantage in another way since it obviated the necessity for feeding and housing the men on the work. With the exception of the regular construction forces of the railroad these men were all hauled to and from their work each day in special trains, two on the Nashville, Chattanooga & St. Louis and one on the Tennessee Central.

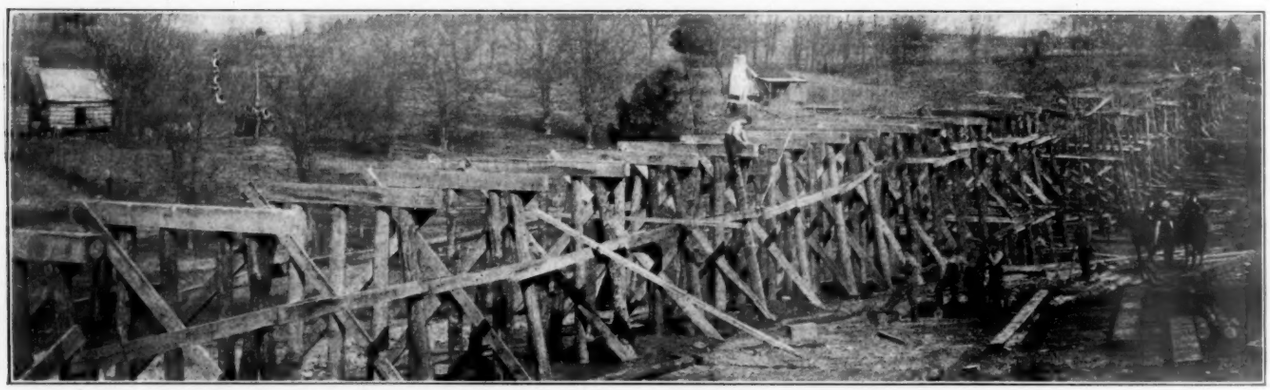
The men were supplied quicker than the materials and equipment, so resort was had largely to the pick and shovel. The cuts were wasted and the fills were borrowed by gangs of men working almost shoulder to shoulder. As the days passed by more modern methods of construction were instituted. Men and equipment of the construction department of the railroad employed in building an extension of the Tracy City branch in the Cumberland mountains were sent to the work. This embodied six extra gangs and five bridge gangs with their camp equipment and a type 70 C. Bucyrus shovel, the latter arriving on the work on February 12, when it was moved out over the track already laid to station 150, then across a field to station 162 into a small rock cut. A Bucyrus pile driver, locomotive crane, six steam drills and a boiler were also brought in at the same time. The extra gangs were used very largely on the track work and the carpenter gangs on the construction of the pile trestles.

The contractor used more power equipment which was moved in on the work from time to time as it proceeded. This equiment included two tractor-drawn graders and two Bucyrus caterpillar shovels with ⅞-cu. yd. dippers and 400 teams. They were used largely in a 60,000-cu. yd. fill near the far end of the line, made principally from barrow.

Materials Rapidly Gathered

The accumulation of the necessary materials was a large problem in itself. The temporary line was laid with 57-lb. relayer rail while all the remaining main line rail was 80 lb. In the yard at the plant the contractor laid 57-lb. Russian rail. The problem of supplies involved not only those needed for the initial seven miles of main line but materials had to be hauled in simultaneously for the second track and the yard tracks at the plant. For instance, the railroad company furnished 20,000 ties out of stock for use in the first line, but while this material was being supplied the company's purchasing organization was busy gathering 175,000 standard ties, 135,000 narrow-gage ties, and 160 sets of switch ties for the use of the plant contractor.

Lumber and piles were also required for the trestles, one of 700 ft. and another 100 ft. which were needed at once. Additional trestle material being required for the second track. The piles for the big trestles were brought from the various divisions of the road, in Tennessee. The first piles driven were telephone poles which the railroad had purchased for the construction of a telephone line, while the majority of the piles were cut from the woods and brought to the work.



An 800-foot Trestle with Piles from Four States Completed in Five Days

To facilitate the handling of supplies one of the first steps taken in the work was to build a material yard with adequate trackage just north of the connection with the Tennessee Central. Until a considerable portion of the track was built, practically all of the material was despatched from this yard to points on the line by motor trucks. At the end of 32 days the track was ready to carry traffic into the plant and the railroad's part of the work was over. The railroad's work was handled by the engineering department of the Nashville, Chattanooga & St. Louis, of which Hunter McDonald is chief engineer. Direct responsibility for the progress of the work fell upon Leigh Taliaferro, construction superintendent, while the gathering and despatching of materials to the work was carried on by various members of the organization, including C. M. McDaniel, tie and timber agent.

Higher Freight and Passenger Rates Ordered

Freight Increase 25 Per Cent. Passenger Basis Three Cents Per Mile. State Rates Leveled Up

GENERAL ADVANCES IN FREIGHT RATES and passenger fares, to apply both to interstate and intrastate traffic were ordered by Director General McAdoo in General Order No. 28, which was telegraphed to the railroads from his office late Saturday night, May 25. The increases are declared to be necessary to meet extraordinary increases in operating expenses, estimated at from $830,000,000 to $860,000,000 for the year 1918, including the $300,000,000 increase in wages, and the director general promises appropriate reductions later if they turn out to be greater than necessary.

Freight rates are to be increased by 25 per cent or by specific amounts in the case of certain commodities, effective on June 25.

Passenger fares are to be advanced to a minimum of three cents per mile, effective on June 10, with an extra passage charge of 8⅓ per cent to 16⅔ per cent for passengers traveling in sleeping and parlor cars. Commutation fares will be increased 10 per cent and reduced mileage and excursion rates, with some exceptions, will be discontinued.

The proposed rates have been worked out by the various rate committees of the railroads, under the direction of the division of traffic. In the case of the passenger fares nearly 200 rate clerks have been at work in Washington for several weeks under the direction of a committee headed by E. L. Bevington, formerly chairman of the Transcontinental Passenger Association and composed of one representative of each of the territorial passenger associations. Various bases for the increase have been suggested for the consideration of the director general and he signed the order on his return to the office after an absence of nearly two months, including his Liberty Loan tour and a period of illness, during which, however, he has been in constant touch with both railroad and treasury affairs.

A particularly interesting feature of the plan is that all intrastate rates are to be cancelled where there are interstate rates published between the same points and the interstate rates as increased will apply.

Passenger fares are to be made on a mileage basis, so that a higher fare will be charged for a longer route between two points except that the order provides that where public convenience will be served thereby fares determined by the short line may be applied over longer routes. It is understood that this means that a uniform rate will be applied between large cities reached by several routes of approximately the same length.

Director General McAdoo's Statement

In explanation of the necessity for the increases in rates Director General McAdoo made the following statement:

"The United States has taken over the railroads as a war emergency measure. They must be operated efficiently if the war is to be carried to a successful conclusion and they must be operated under the high cost conditions the war has created. These conditions are strikingly illustrated by the steady increase in the cost of railroad coal, as indicated by the following table:

1915	122,000,000	tons	@	$1.13	$137,860,000
1916	136,000,000	tons	@	1.32	179,520,000
1917	154,570,000	tons	@	2.12	329,000,000
1918	166,000,000	tons	@	2.95	489,700,000

"The increases in the cost of fuel oil consumed by the railroads and in the cost of other railroad materials and supplies have likewise been enormous.

"These increases have contributed inevitably to the increased cost of living, which in turn has created a demand for increased wages for railroad employees. This subject was exhaustively considered recently by the Railroad Wage Commission, consisting of Messrs. Franklin K. Lane, Charles C. McChord, J. Harry Covington and William R. Willcox, who have unanimously recommended increases in wages which they estimated will add to railroad operating costs not less than $300,000,000 in the year 1918. The director general has put the recommendation of the Wage Commission into effect, making at the same time certain additional increases for some classes of employees in order to meet practical necessities which cannot be escaped or postponed.

"On account of these extraordinary increases in operating costs, which have come about as a consequencse of the war, it is estimated that for the same aggregate business as last year, and under the same conditions except as to prices and wages, the operating expenses for the calendar year 1918 will be from $830,000,000 to $860,000,000 more than for the calendar year 1917.

"While these increased operating costs will be subject to readjustments and may be somewhat diminished, yet on the other hand, because of the abnormal methods by which business must be conducted to serve the needs of the war, they may be substantially increased. It seems clear that the railroads should be made self sustaining and that sufficient revenues should be provided to prevent them from becoming a burden on the federal treasury. The immediate practical necessity is that, without delay, increases in rates should be made to provide for these increased costs of operation. At best, practically half of the year 1918 must elapse before such increases in rates can be made effective, although increases in operating expenses have been steadily effective since January 1, 1918.

"Therefore, by virtue of the power, during federal control of the railroads, which the act of Congress has conferred upon the President to initiate rates whenever the public interest requires, which power, as provided in that act, the President by proclamation has devolved upon the director general, the latter has been compelled for the reasons stated, to initiate substantial increases in freight and passenger rates for practically all transportation services performed by the railroads under federal control, including, of course, transportation services within the several states as well as transportation service across state lines. These increases are made with the approval of the President and are explained in detail in the copy of order accompanying this announcement.

"The increases in passenger rates will become effective on the 10th day of June, 1918, and the increases in freight rates will become effective on the 25th day of June, 1918.

"In making the advance effective on the dates specified a simple form of tariff authorized by the Interstate Commerce Commission must be used and this will lead to the temporary disregard, to some extent, of established groupings and differentials. But it is the intention to observe such groupings and differentials as far as practicable, and hereafter, with as much despatch as possible, restore any important relationships which may be for the time being disturbed, and concurrently therewith endeavor to remove any existing discrimination and bring about uniformity of rate adjustment throughout sections where conditions are similar.

"The act of Congress provides that the reasonableness and justness of such rates may be dealt with by the Interstate

Commerce Commission, so that no interests affected will be deprived of the opportunity for full hearing and consideration. The act of Congress provides that the commission, in passing upon these questions, shall take into consideration the President's finding and certificate that in order to defray the expenses of federal control and operation it is necessary to increase the railway operating revenues. In this connection it is important to make clear that no part of the increase in rates now initiated is on account of the making of additions and betterments or the purchase of new equipment or other expenditures chargeable to investment account. The increases initiated are solely on account of increased burdens tending to diminish railway operating income.

"In the nature of things no such far-reaching step can accomplish ideal equalization as between the numerous interests necessarily affected and doubtless the commission will find it proper to make readjustments to attain a nearer approach to such equalization. While as far as practicable, the rates as initiated are designed to avoid unnecessary disturbance of relative rate bases, the director general will co-operate heartily with the commission in any readjustments needed to accomplish still further the object of avoiding undue preferences which, nevertheless, may develop upon detailed consideration by the commission.

"It is earnestly hoped that all citizens affected directly or indirectly by this increase of rates will support the general principle of such increase as an unavoidable war measure and accept the additional burden in the same spirit of self-sacrifice in which they have accepted other inconveniences and burdens and the grievous personal losses which are parts of the price that the nation is patriotically paying for world liberty.

"In considering these increases, one vital distinction which makes them fundamentally different from any rate increases ever proposed or allowed when the railroads were under private control should be understood. This distinction is that there is no way in which the present increases will inure to private profit. If they turn out to be more than are needed to meet the grave public exigency, they will promptly be readjusted so as to prevent any unnecessary burden upon the public; but pending such readjustment the excess, if any, will be for the benefit of the people of the United States as a whole and not for the benefit of the private railroad owners or any of them.

"To the extent that savings can be effected and to the extent that reduced prices for the things the railroads must buy can be realized, it will be the purpose of the director general to make from time to time appropriate reductions."

The order is as follows:

General Order No. 28

Whereas, it has been found and is hereby certified to the Interstate Commerce Commission that in order to defray the expenses of federal control and operation fairly chargeable to railway operating expenses, and also to pay railway tax accruals other than war taxes, net rents for joint facilities and equipment, and compensation to the carriers, operating as a unit, it is necessary to increase the railway operating revenues, and

Whereas, the public interest requires that a general advance in all freight rates, passenger fares and baggage charges on all traffic carried by all railroad and steamship lines taken under federal control under an act of Congress approved August 29, 1916, entitled An Act making appropriations for the support of the army for the fiscal year ending June thirtieth, nineteen hundred and seventeen, and for other purposes, shall be made by initiating the necessary rates, fares, charges, classifications, regulations, and practices by filing the same with the Interstate Commerce Commission under authority of an Act of Congress approved March 21, 1918, entitled An Act to provide for the operation of transportation systems while under federal control, for the just compensation of their owners, and for other purposes—

Now, therefore, under and by virtue of the provisions of the said act of March 21, 1918, it is ordered that all existing freight rates, passenger fares and baggage charges, including changes heretofore published but not yet effective, on all traffic carried by all said railroad and steamship lines under federal control, whether the same be carried entirely by railroad, entirely by water, or partly by railroad and partly by water, except traffic carried entirely by water to and from foreign countries, be increased or modified, effective June 25, 1918, as to freight rates and effective June 10, 1918, as to passenger fares and baggage charges, to the extent and in the manner indicated and set forth in the "Exhibit" hereto attached and made part hereof, by filing schedules with the Interstate Commerce Commission effective on not less than one day's notice.

Given under my hand this twenty-fifth day of May, 1918.

W. G. McAdoo,
Director General of Railroads.

The exhibit referred to describes the increases to be made as follows:

Freight Rates

Section 1. Class Rates (Domestic)

(a) All interstate class rates shall be increased 25 per cent.

(b) All intra-state class rates shall be increased 25 per cent where there are no interstate class rates published between the same points, and shall be governed by the classification, viz: Official Classification, Southern Classification or Western Classification, exceptions thereto and minimum weights which generally govern the interstate rates in the same territory, except that the Illinois Classification will be used between points in the state of Illinois.

(c) All intra-state class rates shall be canceled where there are interstate class rates published between the same points and the interstate rates as increased by paragraph (a) shall apply.

(d) After such increase of 25 per cent no rates shall be applied on any traffic moving under class rates lower than the amounts in cents per 100 lb. for the respective classes as shown below for the several classifications. Any article, on which exceptions to any Classification provides a different rating than as shown in the classification to which it is an exception, will be subject to the minimum as provided below for the class provided therefor in the classification proper.

Official Classification

Classes	1	2	3	4	5	6
Rates	25	21½	17	12½	9	7

Southern Classification

Classes	1	2	3	4	5	6	A	B	C	D
Rates	25	21½	19	16	13	11	9	10	7½	6½

Western Classification

Classes	1	2	3	4	5	A	B	C	D	E
Rates	25	21	17½	15	11	12½	9	7½	6½	5

Illinois Classification

Classes	1	2	3	4	5	6	7	8	9	10
Rates	25	21	17½	15	11	12½	9	7½	6½	5

Section 2. Commodity Rates (Domestic)

(a) Interstate commodity rates on the following articles in carloads shall be increased by the amounts set opposite each:

Commodities					Increases
Coal..	Where rate is	0 to 49	cents per ton..		*15 cents per net ton of 2,000 lb.
	Where rate is	50 to 99	cents per ton..		*20 cents per net ton of 2,000 lb.
	Where rate is	$1.00 to	$1.99 per ton..		*30 cents per net ton of 2,000 lb.
	Where rate is	2.00 to	2.99 per ton..		*40 cents per net ton of 2,000 lb.
	Where rate is	$3.00 or higher	per ton..		*50 cents per net ton of 2,000 lb.

*Where rates have not been increased since June 1, 1917, the increase to be made now shall be determined by first adding to the present rate 15 cents per ton, net or gross as rated, or if an increase of less than 15 cents per ton, net or gross as rated, has been made since that date, then by first adding to the present rate the difference between the amount of that increase and 15 cents per ton, net or gross as rated; and to the rates so constructed the above increases shall now be added.

Where rates from producing points or to destinations have been based on fixed differentials in cents per ton, such differentials to be maintained, the increase to be figured on the highest rated point or group.

Coke..	Where rate is	0 to 49	cents per ton..		*15 cents per net ton of 2,000 lb.
	Where rate is	50 to 99	cents per ton..		*25 cents per net ton of 2,000 lb.
	Where rate is	$1.00 to	$1.99 per ton..		*40 cents per net ton of 2,000 lb.
	Where rate is	2.00 to	2.99 per ton..		*60 cents per net ton of 2,000 lb.
	Where rate is	3.00 or higher	per ton..		*75 cents per net ton of 2,000 lb.

*Where rates have not been increased since June 1, 1917, the increase to be made now shall be determined by first adding to the present rate 15 cents per ton, net or gross as rated, or if an increase of less than 15 cents per ton, net or gross as rated, has been made since that date, then by first adding to the present rate the difference between the amount of that increase and 15 cents per ton, net or gross as rated; and to the rates so constructed the above increases shall now be added.

Where rates from producing points or to destinations have been based

on fixed differentials in cents per ton, such differentials to be maintained, the increase to be figured on the highest rated point or group.

Ores, iron, 30 cents per net ton of 2,000 lb.; except that no increase shall be made in rates on ex-lake ore that has paid one increased rail rate before reaching lake vessel.

Stone, artificial and natural, building and monumental, except carved, lettered, polished or traced, two cents per 100 lb.

Stone, broken, crushed and ground, one cent per 100 lb.

Sand and gravel, one cent per 100 lb.

Brick, except enameled or glazed, two cents per 100 lb.

Cement, cement plasters and plaster, two cents per 100 lb.

Lime, one and one-half cents per 100 lbs.

Lumber and articles taking same rates or arbitraries over lumber rates; also other forest products, rates on which are not higher than on lumber, 25 per cent, but not exceeding an increase of five cents per 100 lb.

Grain, wheat, 25 per cent, but not exceeding an increase of six cents per 100 lb.

Other grain, new wheat rates.

Flour and other mill products, 25 per cent, but not exceeding an increase of 6 cents per 100 lb., and increase shall not be less than new rates on wheat.

Cotton, 15 cents per 100 lb.

Cotton linters, new cotton rates.

Live stock, 25 per cent, but not exceeding an increase of 7 cents per 100 lb., where rates are published per 100 lb., or $15 per standard 36-ft. car where rates are published per car.

Packing house products and fresh meats, 25 per cent, except that the rates from all Missouri river points to Mississippi river territory and east thereof shall be the same as the new rates from St. Joseph, Mo.

Bullion, base (copper or lead), pig or slab and other smelter products, 25 per cent, except: 1. That rates from producing points in the states of Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, Utah and Washington, to New York, N. Y., shall be $16.50 per net ton with established differentials to other Atlantic seaboard points and

2. Rates from points in Colorado and El Paso, Texas, to Atlantic seaboard points shall be increased $6.50 per net ton.

Separately established rates used as factors in making through rates to the Atlantic seaboard shall be increased in amounts sufficient to protect the through rates as above increased.

Sugar, including syrup and molasses where sugar rates apply thereon, 25 per cent, except:

(1) Where the Official Classification applies, 5th class rates as increased will apply.

(2) From points east of the Indiana-Illinois state line to points west of the Mississippi river, rates will continue to be made on combination of local rates or of proportional rates if published, to and from the Mississippi river; except that from points on the Atlantic seaboard to the Missouri river, Kansas City, Mo., to Sioux City, Iowa, inclusive, established differentials over the increased rates from New Orleans, La., shall be maintained.

(3) From points in the states south of the Ohio river and east of the Mississippi river, also from points in the states of Louisiana and Texas, rates shall be increased; to Chicago, Ill., 22 cents per 100 lb.; to St. Louis, Mo., 27½ cents per 100 lb.; to other points west of the Indiana-Illinois state line and west of the Mississippi river, except points in Arkansas, Louisiana and Texas, 22 cents per 100 lb.; to points on and north of the Ohio river and east of the Indiana-Illinois state line rates shall be increased to maintain the former established relation to the rates to such points from producing points on the Atlantic seaboard.

(4) From producing points in Colorado, Wyoming, Montana, Kansas and Nebraska to Missouri river territory and points in Arkansas, Oklahoma, Louisiana and Texas and points east thereof, 22 cents per 100 lb.

(5) From points in Idaho and Utah to points named in paragraph (3) rates shall be 15 cents above the rates from eastern Colorado.

(6) From points in California to points taking Missouri river rates and points related thereto under the Commission's Fourth Section Orders, and to points east of the Missouri river, 22 cents per 100 lb.

(b) Interstate commodity rates not included in the foregoing list shall be increased 25 per cent.

(c) Intrastate commodity rates shall be increased as shown in paragraphs (a) and (b) of this section where there are no interstate commodity rates published on substantially the same commodities between the same points, and shall be subject to the minimum weights applicable on interstate traffic in the same territory.

(d) Intra-state commodity rates shall be canceled where interstate commodity rates are published on substantially the same commodities between the same points, and the interstate rates as increased by paragraphs (a) and (b) of this section shall apply.

(e) In applying the increases prescribed in this section the increased class rates applicable to like commodity descriptions and minimum weights between the same points are not to be exceeded, except that the increases in rates on sugar in carloads shall be made as expressly provided in paragraph (a) of this section.

Section 3. Export and Import Rates

All export and import rates shall be cancelled and domestic rates applied to and from the ports.

Section 4. Filing Intra-State Tariffs with Interstate Commerce Commission

(a) All intra-state rates and all rates for transportation by water, which are to be increased under this order, if not now on file, except rates cancelled under paragraph (c) of Section 1 and paragraph (d) of Section 2, shall be immediately filed with the Interstate Commerce Commission.

(b) All items which are confined in their application to intra-state traffic, but are now carried in tariffs on file with the Interstate Commerce Commission, if not cancelled under paragraph (c) of Section 1 and paragraph (d) of Section 2, shall be made applicable to all traffic.

Section 5. Minimum Charges

(a) The minimum charge on less than carload shipments shall be as provided in the classification governing, but in no case shall the charge on a single shipment be less than fifty cents.

(b) The minimum charge for carload shipments shall be $15 per car. Does not apply to charges for switching service.

Section 6. Disposition of Fractions

In applying rates, fractions shall be disposed of as follows:

(a) Rates in cents or in dollars and cents per 100 lb. or per package.
Fraction of less than ¼ or .25 to be omitted.
Fractions of ¼ or .25, or greater, but less than ¾ or .75 to be shown as one-half (½).
Fractions of ¾ or .75, or greater, to be increased to the next whole figure.

(b) Rates per ton:
Amounts of less than five cents to be omitted.
Amounts of five cents or greater, but less than ten cents, to be increased to ten cents.

(c) Rates per car:
Amounts of less than 25 cents to be omitted.
Amounts of 25 cents or greater, but less than 75 cents to be shown as 50 cents.
Amounts of 75 cents or greater, but less than one dollar, to be increased to one dollar.

Section 7. Observance of Differentials

In establishing the freight rates herein ordered, while established rate groupings and fixed differentials are not required to be used, their use is desirable if found practicable, even though certain rates may result which are lower or higher than would otherwise obtain.

PASSENGER FARES AND BAGGAGE CHARGES

Section 8

This order shall apply to all the passenger fares, both interstate and intra-state, of the railroads under federal control. No existing fare equal to or in excess of three cents per mile shall be reduced. All fares now constructed on a lower basis than three cents per mile shall be advanced to the basis of three cents per mile. All fares which are on a lower basis than the said existing or advanced fares, as the case may be, such as mileage or excursion tickets shall be discontinued. These requirements are subject to the following exceptions:

(a) The provisions of Section 1 and 22 of the Act to Regulate Commerce, which authorize free or reduced fares or transportation may be observed, except,

First: That no mileage ticket shall be issued at a rate that will afford a lower fare than the regular one-way tariff fare, and except;

Second: That excursion tickets may be issued only to the extent and on the terms set forth in paragraphs (b) and (c) below:

(b) Round trip tourist fares shall be established on a just and reasonable basis bearing proper relation to the one-way fares authorized by this order, and tariffs governing same shall be filed as promptly as possible with the Interstate Commerce Commission.

(c) For the National Encampment of the Grand Army of the Republic and auxiliary and allied organizations at Portland, Ore., in 1918, and for the United Confederate Veterans' Reunion, auxiliary and allied organizations at Tulsa, Okla., in 1918, a rate of one cent per mile in each direction via direct routes shall be authorized and confined by certificate of identification to the membership of these organizations and members of their immediate families. For the various state meetings of these organizations held during the year 1918, fares shall be authorized under like conditions on basis of two cents per mile in each direction and confined to limits of the state in which the meeting is held.

(d) Where public convenience will be served thereby, subject to the approval of the director general, fares determined by the short line may be applied over longer practicable routes.

(e) Officers, enlisted men and nurses of the United States Army, Navy and Marine Corps, when traveling in uniform at own expense, shall be granted the privilege of purchasing passage tickets at one-third the regular one-way fare, via route of ticket, applicable in coach, parlor or sleeping car, as the case may be, when on furlough or official leave of absence, except that this reduced fare shall not be granted on short term passes from camps or when on liberty from ships or stations to nearby cities.

Applicants for such tickets shall be required to submit for inspection of ticket agent, military furlough or other official form of leave of absence and to surrender to ticket agent a furlough fare certificate signed by a commanding officer.

(f) Children under five years of age, when accompanied by parent or guardian, shall be carried free; children five years and under twelve of age shall be charged half-fare.

Section 9

Commutation fares shall be advanced ten per cent. Commutation fares shall be construed to include all forms of transportation designed for suburban travel and for the use of those who have daily or frequent occasion to travel between their homes and places of employment or educational institutions.

Section 10

Passengers traveling in standard sleeping cars and parlor cars shall be required to pay an additional passage charge of sixteen and two-thirds per cent of the normal one-way fare, and passengers traveling in tourist sleeping cars an additional passage charge of eight and one-third per cent of the normal one-way fare. The foregoing charges are in addition to those required for the occupancy of berths in sleeping cars or seats in parlor cars.

Section 11

The following minimum number of tickets of the class good for passage in sleeping or parlor cars shall be required for occupancy of drawing rooms, compartments or sections in parlor or sleeping cars:

Two adult tickets for a drawing room in a sleeping car.

Two adult tickets for a compartment.

One and one-half adult tickets for a section.

Five adult tickets for exclusive occupancy of drawing room in a parlor car.

Section 12

Passenger fares or charges for accommodation and transportation of passengers entirely by water, or partly by water and partly by rail, shall be increased proportionately with fares and charges for the transportation of passengers via rail.

Section 13

The basis for computing charges for excess baggage transported under

lawfully effective tariffs shall be sixteen and two-thirds per cent of the normal one-way passenger fare, with minimum of fifteen cents per 100 lb. and minimum collection of twenty-five cents per shipment.

Section 14

Tickets purchased prior to June 10, 1918, will not be honored for passage on and after that date, except:

(a) Passengers en route on June 10, 1918, on one-way tickets will be carried to destination by continuous passage without additional charge.

(b) Round trip tickets, portions of which have been used prior to June 10, 1918, or held by passengers en route on June 10, 1918, shall be honored in accordance with original tariff conditions under which sold without additional payment except that they shall be subject to the same requirements as one-way tickets in respect of additional payment for passage in sleeping or parlor cars as prescribed in Section 10.

Tickets made invalid for passage by this order will be redeemed from original purchasers as follows:

Unused tickets will be redeemed at amount paid therefor.

Partially used one-way tickets will be redeemed by charging tariff fare at time of journey for portion used and refunding difference between such amount and fare at which sold.

In redemption of mileage, scrip or credential forms the purchaser shall be given the benefit, for the distance traveled of a net basis proportionate to that which would have applied had the entire book been used according to its contract.

Section 15

All passenger fares, lower than those hereinbefore prescribed, such as mileage, party, second-class, immigrant, convention, excursion and tourist fares shall be discontinued until further notice, except that tourist fares shall be re-established as prescribed in Section 8, paragraph (b) hereof.

Section 16

Tariff provisions intended to assure the long haul to carriers, and which prevent the free interchange of traffic shall be eliminated.

Section 17

Stopovers on one-way tickets, side trips at free or reduced fares, discounts by use of excess baggage permits or excess money coupon books, and the sale of one-way tickets bearing limit in excess of time necessary to make trip by continuous passage, shall be discontinued.

Section 18

Optional routes may be used only when specified in tariffs.

Section 19

In publishing fares and charges under this order, tariffs may be used which increase the present fares by fixed percentage to bring them to the bases authorized herein, even though the actual fares so constructed may be fractionally more or less than three cents per mile.

GENERAL

Section 20

Where the Interstate Commerce Commission prior to the date hereof has authorized or prescribed rates, fares and charges, which have not been published at the date of this order, the rates, fares or charges initially established hereunder by applying the increases herein prescribed to the existing or published rates, fares or charges may be subsequently revised by applying the increases prescribed herein to the rates, fares and charges so authorized or prescribed by the Interstate Commerce Commission.

Section 21

All schedules, viz: tariffs and supplements, published under the provisions of this order shall bear on the title page the following, in bold face type:

THE *RATES MADE EFFECTIVE BY THIS SCHEDULE ARE INITIATED BY THE PRESIDENT OF THE UNITED STATES THROUGH THE DIRECTOR GENERAL, UNITED STATES RAILROAD ADMINISTRATION AND APPLY TO BOTH INTERSTATE AND INTRA-STATE TRAFFIC. THIS SCHEDULE IS PUBLISHED AND FILED ON ONE DAY'S NOTICE WITH THE INTERSTATE COMMERCE COMMISSION UNDER GENERAL ORDER NO. 28 OF THE DIRECTOR GENERAL, UNITED STATES RAILROAD ADMINISTRATION, DATED MAY 25, 1918.

*On passenger tariffs use word "fares." On baggage tariffs use word "charges."

The increases are estimated to produce an increase of revenue amounting to something over $900,000,000 a year.

McAdoo Explains to State Commissioners

Director General McAdoo on May 27 sent the following telegram to the chairmen of all state railroad commissions:

"Apparent increases in operating expenses aggregating $830,000,000 to $960,000,000 for the calendar year 1918, as compared with the calendar year 1917, and consisting principally of increases in wages and cost of coal, fuel oil and other materials and supplies, leave no escape from the conclusion that the public interest requires immediate and substantial increases in the rates for practically all services, passenger and freight, now performed by the railroads under federal control, and therefore in effect performed by the United States government itself, and that there is no other reasonable way to defray the expenses of federal control and operation since it is clear that those additional burdens should not be forced upon the federal treasury at this time when it is already so heavily taxed by the needs of our own government for war purposes and the essential demands for credit of the gallant nations associated with us in this great struggle for liberty. In these circumstances, it seems clear that the duty which rests upon me by virtue of the act of Congress of March 21, 1918, and by virtue of the President's proclamation, should be performed by the initiation without delay of increased rates to meet the situation.

"In dealing with this supremely important subject, I have given much thought to the question as to the practical way of availing myself of the knowledge and co-operation which at all times have been so cordially put at my disposal by the state commissions. The act of Congress gives me no opportunity to share with the state commissions the responsibility which rests upon the United States Railroad Administration for the financial results to the United States Government of the operation of the railroads. In fact the government of the United States has assumed control of the railroads and the undivided responsibility for their operation, and that entire responsibility has been placed upon me. I have also felt that the exigencies of the situation are so serious as not to admit of postponement of action until full opportunity could be extended to the commissions in all the states to discuss the important problems involved and to advise me, in advance of official action, as to how my responsibility could best be discharged.

"In these circumstances, it has seemed clear that the responsibility should be promptly met in the manner contemplated by the act of Congress, and then, in the inevitable readjustments which always must come in a matter of such far-reaching character, to obtain the advice and suggestions of the state commissions and to take advantage of their views in order that in the final consideration of the subject by the Interstate Commerce Commission, that body may have the benefit of the most intelligent and equitable suggestions as to the readjustments needed to accomplish the largest measure of relative justice while at the same time obtaining the additional operating revenues which the United States government must have in order to discharge the responsibilities which it has assumed for railroad operation.

"Acting upon this view, I am initiating substantial increases in practically all rates, passenger and freight, and am arranging to have delivered to you at once a copy of the announcement on this subject. I earnestly hope that the procedure thus adopted and which is unavoidable, will have your support, and that you will give the government your full co-operation in perfecting the rates thus initiated. I also bespeak your patriotic co-operation in getting the public to support in a patriotic spirit and as a war measure these substantial rate increases which are the outgrowth of war conditions and which in principle and in substance are indispensable to enable the federal government to discharge the transportation functions which are essential to the successful conduct of the war."

Interstate Commerce Commission Issues Necessary Orders

The Interstate Commerce Commission on Monday issued a fifteenth section order that the presently effective joint rates, fares, charges and classifications applicable to the joint transportation of freight and passengers between points on the lines of carriers under federal control on one hand, and points on lines of carriers not under federal control on the other hand, may be increased to the bases set forth in General Order No. 28, and approving for filing the joint rates without formal hearings, "which approval shall not affect any subsequent proceeding relative thereto." It is further ordered that the rates may become effective on not less than one day's notice. In a general order the commission says that certain of the present freight rates, passenger fares and baggage charges of the carriers are fixed for the future by outstanding orders of the commission which were made

for the most part under normal conditions of traffic and without consideration of the present war emergency, and that the carriers have heretofore filed certain increases in these rates which have been suspended by the commission. It is therefore ordered that all orders upon formal complaint heretofore entered and unexpired, in so far as they prescribe specific maximum freight rates, passenger fares and baggage charges for the future, be modified to the extent of permitting the defendants to make effective rates not in excess of those prescribed in Director General McAdoo's order. It is also ordered that outstanding orders of the commission heretofore entered and unexpired and orders heretofore entered in investigation and suspension proceedings be similarly modified.

Another order grants relief from the provisions of the fourth section in those instances in which carriers under federal control are required by General Order No. 28 to apply higher rates for shorter than for longer distances.

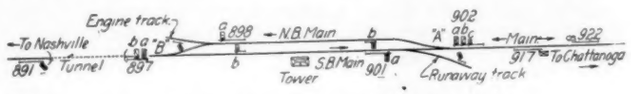
Low Voltage Switch Machines Facilitate Traffic

How Outlying Switches Operated Electrically Help Train Movements in Mountainous Territory

By G. S. Pflasterer

Signal Engineer, Nashville, Chattanooga & St. Louis, Nashville, Tenn.

WE MAY CONSIDER the art of signaling as divided into two general classes, block signals and interlocking plants. Block signals may again be subdivided into three general classes covering manual, controlled manual, and automatic block. Block signaling on this company's line has not been extensively applied, but certain comprehensive and important installations on sections of main line that have been made have proved very useful,



Track Layout at Rockledge

safe and efficient, and have eliminated many delays, thus greatly facilitating the movement of the heavy traffic over the single track territory involved.

Type of Signaling

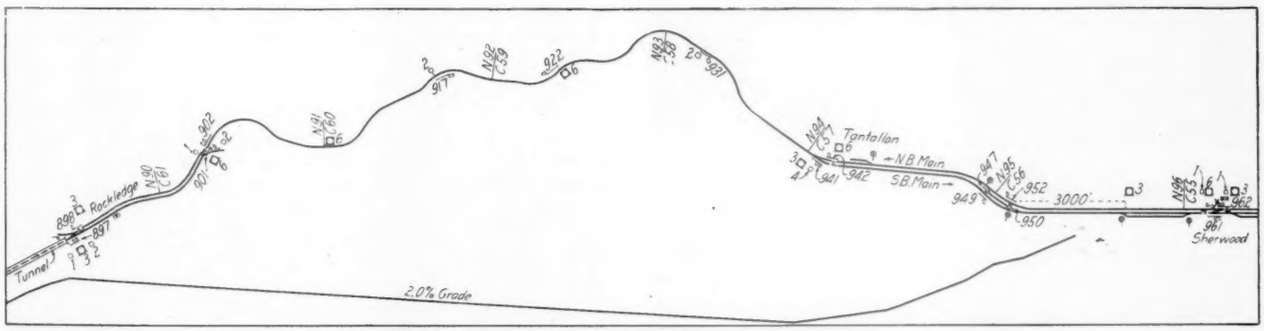
It is expected that the increased mileage of double track now in operation and that contemplated in the future will be protected by complete automatic signal installations, and also that a number of railroad crossings and junction points now unprotected, will be protected by modern interlocking apparatus. The manual block is now in service on 100.39 miles of the line. It is necessary to issue train orders and clearance cards on this territory. From Bolton to Junta semi-automatic electric distant signals are used as adjuncts to the train order signals.

The controlled manual block is installed between Cowan and Sherwood over the Cumberland mountains and includes the protection of the tunnel at the summit. Trains over this section of the road are operated by signal indications without train orders or clearance cards, and such indications supersede time table superiority by right, class and direction. All signals are semi-automatic and are operated electrically. All the switches in this territory are operated by low voltage switch machines.

The electric staff system is in use between Shops and West Nashville on the West Nashville branch. Automatic block signals are installed on the double track between Tantallon and Sherwood—two miles—and are a part of and interconnected with the controlled manual block above referred to. This stretch of double track is very often operated as two single tracks and the signaling is so designed that permissive indications are provided for following movements with current of traffic, and for absolute block controlling opposing movements against the current of traffic on either side. All main lines and branches are equipped with train order signals at each station.

Low Voltage Switch Machines

In the early part of 1916 this company decided, as an experiment, to install a few low voltage switch machines. Important track changes over the Cumberland mountains between Rockledge and Sherwood having been authorized, it was decided to use these machines on this territory for the operation of switches which had heretofore been handled by hand. The location of these switches was such that they could not be seen from the point of operation and to control them through regular electric interlocking apparatus would



Line and Profile, Rockledge, Tenn., to Sherwood

naturally have meant an exceptionally large expenditure of money.

This territory, as well as that between Cowan and Rockledge, has since 1911 been protected by the semi-automatic controlled manual block system. The revised track arrangement necessitated a change and an addition to the signals, as all movements were then and are still being made by signal indications without train orders or caution cards. These signal indications supersede time table rights as stated above. A small electro-mechanical interlocking plant was formerly located at Rockledge, which is on the summit of the mountain. This plant handled the north end switch of the passing track and the signals were power operated. The switches at the south end were operated by hand but the signals at this point were of the power type. At the south end of the passing track is located a runaway track which made a crossover movement necessary to get on the main line. The switches of the crossover were boltlocked with each other, so that it was necessary for a train entering the passing track at the north end to stop at the south end before proceeding out on the main line. If a train was unable to stop due to the failure of brakes or from other causes, it was diverted to the runaway track which was built on an ascending grade to stop such a train by gravity.

The revised track arrangement consisted in lengthening the passing track at both ends, and retaining the runaway track with the exception that it was located on the opposite side of the main track, and the passing track was used as a second main track. This track rearrangement placed the switch which was formerly operated mechanically at too great a distance to be handled in such a manner. The switch at the south end was still more remote from the tower. The track to the south is on a 2 per cent descending grade. In order to facilitate train movements and to make them as safe as possible between Rockledge and Sherwood, it was decided that all switches in this territory should be controlled and operated electrically.

Low voltage switch machines were decided on for this

Switch at End of Double Track at Tantallon

purpose, and five Model 13 machines were ordered from the Union Switch & Signal Company, four of which were used at Rockledge. The two machines to the north of the tower are approximately 1,500 ft. distant, while those to the south are located approximately 2,700 ft. from the point of control. The original mechanical interlocking machine, which is a National of 12 levers and was manufactured at the Nashville, Chattanooga & St. Louis Railroad shops, is still in use.

The switch and facing point lock levers formerly operating the north switch were removed and two electric units were installed in their place. These units were made by the Union Switch & Signal Company and through these units the two sets of crossovers are operated and indicated. These electric units have mechanical connections with the mechanical lockings and in this manner are properly interlocked with all other levers in the machine, through which the power signals are operated. The power signals are controlled through rotary circuit controllers which are operated by the tail levers of the machine.

At Tantallon, a point approximately four miles down the mountain from Rockledge, other track changes were made. Double track starts at this point and extends to Sherwood, two miles further south, or a distance of six miles from Rockledge. The fifth low voltage switch machine purchased

Electro-Mechanical Interlocking Machine at Rockledge

was used on the end of the double track switch at Tantallon. This point is located at the foot of the grade and consequently is a very important one from the standpoint of safe and uninterrupted operation. This switch at the end of double track at Tantallon is two miles from the interlocking tower at Sherwood, from which point it is controlled and operated. This I believe to be the record distance for low voltage switch operation.

The switch is controlled through an electric unit of an electro-mechanical machine of the S-7 type as furnished by the Union Switch & Signal Company. All the low voltage switch machines in service operate in from 28 to 30 seconds and require approximately three amperes of current with 20 volts impressed across the motor. Except for a few days after installation, they have given no trouble whatever and we consider them practical, safe and efficient.

Another important installation was made at Bridgeport, Alabama, in 1917. A low voltage switch machine was installed here to operate the end of a double track switch, located across the river south of the tower which is located on the north bank of the river, the switch being approximately one mile from the tower. In this installation a draw bridge intervenes between the tower and the switch. The balance of the switches at this point are in the vicinity of the tower and are mechanically operated. All signals are power operated. The whole layout is operated by an electro-mechanical machine of the S-7 type.

The source of power for the operation of these machines is derived from 32 cells of Type 72 high voltage battery furnished by the National Carbon Company, and this battery is housed in concrete battery wells of the Massey type. The wells are large enough to house additional cells for other purposes.

McAdoo Puts Wage Increase Into Effect

Recommendations of Wage Commission Increased in Some Instances. Eight Hour Basic Day Recognized

WASHINGTON, D. C.

DIRECTOR GENERAL MCADOO on May 25 issued General Order No. 27 putting into effect with some modifications the increases in wages for all railway employees receiving less than $250 a month on December 31, 1915, recommended by the Railroad Wage Commission.

Numerous protests that the increases recommended by the commission would add little or nothing to the wage increases made by the railroads during the last two years, and the practical necessity of greater advances to prevent a general exodus of railroad men to other employments have apparently been taken into consideration by the director general in the case of common labor and shop employees in passing upon the commission's report but, although the order makes certain additional increases for some classes of employees, no change is made in the estimate of the commission that the addition to the railroad payroll will approximate $300,000,000 per annum.

On this basis the back payments to employees due on June 1 will amount to somewhere near $125,000,000.

The order applies to the employees of 164 railroads named in the order, and in addition to "all terminal, union station and switching companies, all or a majority of whose stock is owned by railroads named." The order states further that such other railroads as may be retained in federal control on July 1, 1918, will be added to the list, and that "the Pullman Company, whose status is now being considered, will also be added if decision shall be reached to retain the Pullman Company under federal control."

The rates named in the order do not substantially vary from those recommended by the Railroad Wage Commission, but certain modifications are made which grant to common labor an increase of two and one-half cents per hour in excess of the wages paid on December 31, 1917, when the increase recommended by the Wage Commission is less than that amount, and which establish a minimum rate of 55 cents per hour for such shop trades as machinists, boiler makers, blacksmiths and other mechanics who receive the same basis of rates.

The original recommendation of the Wage Commission, which has been substantially adopted in the director general's order, was based upon the "average monthly earnings" for each class of service for the month of December, 1915. In the tabular statement of monthly rates recommended by the Railroad Wage Commission, the percentages of increase are as high as 43 per cent for employees receiving under $46 per month, the percentage gradually decreasing in what appears to be a constant ratio, leaving no increase to employees whose wages were $250 in December, 1915.

While this ratio of percentages appears to be uniform, the actual increases are shown to extend from $20 per month to the lowest paid men up to $33.60 for those who were receiving $82 in December, 1915, and then gradually decreasing to no increase for those who received $250.

The order is made effective as of January, 1918, and back payments will be made to employees as promptly as possible, separate from the current wage payment and for each month as rapidly as the computations are made for such months.

Colored firemen, trainmen and switchmen, in addition to securing the increase recommended by the Wage Commission, will have their wages advanced to the same as white men employed on the same roads and for the same work on June 1, 1918, but back payments will not apply to this increase, which is made effective as of June 1, 1918.

A marked deviation from the recommendation of the Railroad Wage Commission is found in Article 3, Rules Governing Conditions of Employment, wherein the basic eight-hour day is established. This deviation, however, does not reduce the hours of employment as at present worked, nor does it increase the total compensation fixed in the order for the number of hours now worked in excess of eight hours, but it does establish the basic eight-hour day upon which further wage adjustment will be based.

The order also creates an advisory Board of Railroad Wages and Working Conditions and appoints as members of such Board J. J. Dermody, F. F. Gaines, C. E. Lindsey, W. E. Morse, G. H. Sines and A. O. Wharton.

An abstract of the report of the Railroad Wage Commission was published in the *Railway Age* of May 17. The order of the director general begins with the following preamble:

Preamble

In promulgating this order I wish to acknowledge the patriotic service so unselfishly rendered by the Railroad Wage Commission, consisting of Messrs. Franklin K. Lane, Charles C. McChord, J. Harry Covington, and William R. Willcox, in connection with the important question of wages and hours of service of railroad employees which I referred to them by my General Order No. 5, dated January 18, 1918.

This commission took hold of the task with great energy and devotion and has dealt with the entire subject in a thoroughly sympathetic spirit.

Manifestly in a matter of such magnitude and complexity it is impossible to find any general basis or formula which would correct every inequality and give satisfaction to every interest involved. But the commission has made an earnest effort to do justice to all concerned. I have felt obliged, however, to depart from its recommendations in some particulars.

With respect to hours of service the commission says:

"Manifestly, therefore, at this time, when men must be constantly taken from the railroads, as from all other industries, to fill the growing needs of the Nation's army, hours of labor can not be shortened and thereby a greater number of men be required for railroad work. . . . While the commission is strongly disposed to a standard day, in so far as the nature of the service will permit it, its firm judgment consequently is that the existing hours of service in effect on the railroads should be maintained for the period of the war."

The commission also reached the conclusion that as to overtime "the existing rules and conditions of payment should not be disturbed during the period of the war." The commission has pointed out that this is not the time for any experiments which might lessen the tons of freight hauled and the number of passengers carried when the urgent and serious necessities of the war compel sacrifices from all, and that the adoption of any plan which would prevent the government from working its men as long as they have been in the habit of working under private employers would be to take advantage of the grave war necessities of the government and to embarrass it in carrying forward essential operations of the war at a time when the need of service was never greater and the ability to call in outside men is seriously impaired.

There has never been a time when the public interest

demanded more urgently the devotion and unselfish service of all classes of railroad employees. I agree with the commission that it is not practicable at this time, when the war is calling upon every class of loyal citizens for service and sacrifices, to reduce the actual hours of labor to eight in every line of railroad work.

Nevertheless I am convinced that no further inquiry is needed to demonstrate that the principle of the basic eight-hour day is reasonable and just and that all further contentions about it should be set at rest by a recognition of that principle as a part of this decision.

Recognition of the principle of the basic eight-hour day in railroad service is, therefore, hereby made.

The question arises as to what further steps can and ought justly to be taken to strengthen the application of that principle, and when. This question must be solved in the light of the varied conditions of railroad employment and will have to be studied in detail by the Board of Railroad Wages and Working Conditions herein and hereby created and in the light of what is reasonably practicable under war conditions.

No problem so vast and intricate as that of doing practical justice to the 2,000,000 railroad employees of the country can be regarded as completely settled and disposed of by any one decision or order; therefore the Board of Railroad Wages and Working Conditions is hereby established and will take up as presented any phases of the general problem relating to any class of employees or any part of a class of employees which may justly call for further consideration.

It is my earnest hope that railroad officials and railroad employees will realize that their relations under Federal control are not based upon the old conditions of private management. Dissensions and disappointments should be forgotten and all should now remember that they are not only serving their country in the operation of the railroads, but that upon the character, quality, and loyalty of that service depends in large measure our success in this war.

It is an inspiring task—this task of putting upon a more just and equitable basis the wages and working conditions of loyal workers in railroad service—and I confidently expect the patriotic support and assistance of every railroad official and every railroad employee in performing that task with credit to each other and with honor to their country.

Rates of Wages

Then follows the order, which, in Article I names the railroads involved and in Article II, Section A, establishes the increases in wages recommended by the commission in the scale of monthly rates as of December 31, 1915, with the amounts and percentages of increase to make up the new rates, which was published on page 1239 of our issue of May 17. The only modification in this table is an exception in the case of employees under 18 years of age receiving less than $46 per month, whose increases are provided for in another part of the report.

The remainder of the report, which gives the directions and illustrations as to the methods of applying the increases to hourly, daily, piecework and mileage rates, changed somewhat from the examples given in the Wage Commission's report because of the modifications made by the director general, is as follows:

Method of Applying Increases to Monthly Rates

(1) The employee who holds the same position today that he did the last day of December, 1915, and who then received $75 a month and has received no increase since, will receive an additional wage of $30.75 per month. If he has received an increase in these two years of $10 per month, the recommended increase of his wage will be cut down by that much, making his net advance $20.75.

(2) Employee "A" occupied the same position in 1915 and in 1918: Salary, 1915, $150 per month; 1918, $175 per month.

Basis of increase on salaries of $150 per month is 16.17 per cent, or $24.25 per month. New salary, $174.25; present salary, $175. Present salary undisturbed.

(3) Employee "B" in 1915 received $100, and on the same desk in 1918 received $112.50 per month. Basis of increase on $100, 31.75 per cent, or $31.75. New salary, $131.75. Present salary, $112.50. Employee "B" is entitled to receive back pay from January 1, at the rate of $19.25 (the difference between $131.75 and $112.50), and to receive monthly, hereafter, $131.75 instead of $112.50. Back pay due January 1 to May 31, $96.25.

(4) Employee in December, 1915, received $100 per month, entitles him, with this increase, to $131.75. His salary had been raised for same position on January 1, 1918, to $135. He is not, therefore, entitled to any advance or back pay. Present salary undisturbed.

Method of Applying Increases to Daily Rates

(1) Employee, December, 1915, $3.00:

Increased to new rate of $4.23 per day			$109.98
January 1, 1918, his pay was raised for same work to $3.50 day, equal per month to			91.00
Difference in pay:			
1 month			$18.98
5 months			$94.90
An 8-hour 26-day month both years.			
Worked 62 hours overtime, at new 1918 rate	52.9c.	$32.80	
Was paid 62 hours overtime at	37.5c.	23.25	9.55
Total back pay due January 1 to May 31, 1918			$104.45

SECTION B.—RATES OF WAGES OF RAILROAD EMPLOYEES PAID UPON DAILY BASIS

Old rate per day	New rate per day	Old rate per day	New rate per day	Old rate per day	New rate per day	Old rate per day	New rate per day
$0.75	$1.52	$2.50	$3.53	$4.25	$5.40	$5.95	$6.85
.80	1.57	2.55	3.60	4.30	5.45	6.00	6.90
.85	1.62	2.60	3.67	4.35	5.49	6.05	6.94
.90	1.67	2.65	3.74	4.40	5.53	6.10	6.98
.95	1.72	2.70	3.81	4.45	5.58	6.15	7.02
1.00	1.77	2.75	3.88	4.50	5.62	6.20	7.06
1.05	1.82	2.80	3.95	4.55	5.66	6.25	7.11
1.10	1.87	2.85	4.02	4.60	5.71	6.30	7.15
1.15	1.92	2.90	4.09	4.65	5.75	6.35	7.19
1.20	1.97	2.95	4.16	4.70	5.79	6.40	7.23
1.25	2.02	3.00	4.23	4.75	5.83	6.45	7.28
1.30	2.07	3.05	4.30	4.80	5.88	6.50	7.32
1.35	2.12	3.10	4.36	4.85	5.92	6.55	7.36
1.40	2.17	3.15	4.41	4.90	5.96	6.60	7.41
1.45	2.22	3.20	4.48	4.95	6.00	6.65	7.45
1.50	2.27	3.25	4.55	5.00	6.05	6.70	7.49
1.55	2.32	3.30	4.60	5.05	6.09	6.75	7.53
1.60	2.37	3.35	4.65	5.10	6.13	6.80	7.58
1.65	2.42	3.40	4.70	5.15	6.17	6.85	7.62
1.70	2.47	3.45	4.72	5.20	6.21	6.90	7.66
1.75	2.52	3.50	4.77	5.25	6.26	6.95	7.70
1.80	2.57	3.55	4.81	5.30	6.30	7.00	7.75
1.85	2.65	3.60	4.85	5.35	6.34	7.05	7.79
1.90	2.72	3.65	4.90	5.40	6.38	7.10	7.83
1.95	2.77	3.70	4.94	5.45	6.43	7.15	7.88
2.00	2.83	3.75	4.98	5.50	6.47	7.20	7.91
2.05	2.89	3.80	5.03	5.55	6.51	7.25	7.96
2.10	2.96	3.85	5.07	5.60	6.55	7.30	8.00
2.15	3.03	3.90	5.11	5.65	6.60	7.35	8.04
2.20	3.10	3.95	5.15	5.70	6.64	7.40	8.08
2.25	3.17	4.00	5.20	5.75	6.68	7.45	8.13
2.30	3.24	4.05	5.24	5.80	6.73	7.50	8.17
2.35	3.31	4.10	5.28	5.85	6.77	7.55	8.21
2.40	3.38	4.15	5.32	5.90	6.81	7.60	8.25
2.45	3.45	4.20	5.36				

Old rates are those of December, 1915.

For common labor paid by the day, the scale of new rates per day shown shall apply, with the provision, however, that as a minimum 20 cents per 8-hour day, 22½ cents per 9-hour day, 25 cents per 10-hour day, 27½ cents per 11-hour day, and 30 cents per 12-hour day will be added to the rates paid per day as of December 31, 1917.

(2) Employee "C" was employed in 1918, but not in 1915. Rate of pay on the district where he is employed in 1918, in 1915 was $1.10 per day. The 1918 rate of pay is, on the same district, $1.50 per day. The new rate is $1.87 per day. He will, therefore, be entitled to receive from January 1, 1918, to May 31, 1918, 37 cents per day additional for each day he worked in that period.

While it is expected that the Board of Railroad Wages and Working Conditions hereinafter created shall give consideration to all questions of inequality as between individuals and classes of employees throughout, sufficient information is available to justify certain conclusions with respect to the mechanical crafts, and in the case of machinists, boilermakers, blacksmiths, and other shop mechanics who have been receiving the same hourly rates, the increases named in this order shall apply, with a minimum wage of 55 cents per hour.

It is recognized that this may still leave among shop employees certain inequalities as to individual employees, to which the Board of Railroad Wages and Working Conditions will give prompt consideration.

For common labor paid by the hour, the scale named herein shall apply with the provision, however, that as a minimum, 2½ cents per hour will be added to the rates paid per hour, as of December 31, 1917.

Method of Applying Increases to Hourly Rates

(1) Machinist worked in January, 1918, eight hours per day, 27 days, total 216 hours straight time.

The rate of pay for this position in December, 1915, was 34 cents per hour; new rate under this order 48 cents per hour, but with minimum rate of 55 cents per hour as herein ordered, will receive	$118.80
In January, 1918, his rate of pay was 37½ cents per hour, for 216 hours, equals	81.00
Difference one month	$37.80
On basis of working same amount straight time each month for five months (January 1 to May 31)	189.00
Also worked in same period 90 hours overtime at time and one-half, new 55 cents minimum rate, or 82½ cents, equals	$74.25
Was paid at 37½-cent rate pro rata overtime or	33.75
	23.62
Balance due January 1 to May 31, 1918	$212.62

SECTION C.—RATES OF WAGES OF RAILROAD EMPLOYEES PAID UPON HOURLY BASIS

[Rates of pay in cents per hour.]

Old rate per hour[1]	New rate per hour	Old rate per hour[1]	New rate per hour	Old rate per hour[1]	New rate per hour	Old rate per hour[1]	New rate per hour
10	19.75	38	53.75	66	78.50	94	102.50
10.5	20.25	38.5	54.25	66.5	79.00	94.5	102.75
11	20.75	39	54.75	67	79.50	95	103.25
11.5	21.25	29.5	55.50	67.5	79.75	95.5	103.75
12	21.75	40	56.00	68	80.25	96	104.25
12.5	22.25	40.5	56.75	68.5	80.75	96.5	104.50
13	22.75	41	57.25	69	81.25	97	105.00
13.5	23.25	41.5	57.75	69.5	81.50	97.5	105.50
14	23.75	42	58.25	70	82.00	98	106.00
14.5	24.25	42.5	58.50	70.5	82.50	98.5	106.25
15	24.75	43	59.00	71	83.00	99	106.75
15.5	25.25	43.5	59.50	71.5	83.25	99.5	107.25
16	25.75	44	60.00	72	83.75	100	107.50
16.5	26.25	44.5	60.25	72.5	84.25	100.5	108.00
17	26.75	45	60.75	73	84.50	101	108.25
17.5	27.25	45.5	61.25	73.5	85.00	101.5	108.75
18	27.75	46	61.50	74	85.50	102	109.25
18.5	28.25	46.5	62.00	74.5	86.00	102.5	109.75
19	28.75	47	62.50	75	86.25	103	110.00
19.5	29.25	47.5	63.00	75.5	86.75	103.5	110.50
20	29.75	48	63.25	76	87.00	104	111.00
20.5	30.25	48.5	63.75	76.5	87.50	104.5	111.25
21	30.75	49	64.25	77	88.00	105	111.75
21.5	31.25	49.5	64.75	77.5	88.25	105.5	112.25
22	31.75	50	65.00	78	88.75	106	112.75
22.5	32.25	50.5	65.25	78.5	89.25	106.5	113.00
23	33.00	51	65.75	79	89.75	107	113.50
23.5	33.75	51.5	66.25	79.5	90.00	107.5	114.00
24	34.50	52	66.50	80	90.50	108	114.25
24.5	35.00	52.5	67.00	80.5	91.00	108.5	114.75
25	35.50	53	67.50	81	91.50	109	115.25
25.5	36.00	53.5	68.00	81.5	91.75	109.5	115.75
26	36.75	54	68.25	82	92.25	110	116.00
26.5	37.50	54.5	68.75	82.5	92.75	110.5	116.50
27	38.25	55	69.25	83	93.00	111	117.00
27.5	39.00	55.5	69.75	83.5	93.50	111.5	117.25
28	39.50	56	70.00	84	94.00	112	117.75
28.5	40.25	56.5	70.50	84.5	94.50	112.5	118.25
29	41.00	57	71.00	85	94.75	113	118.50
29.5	41.75	57.5	71.50	85.5	95.25	113.5	119.00
30	42.50	58	71.75	86	95.75	114	119.50
30.5	43.00	58.5	72.25	86.5	96.00	114.5	119.75
31	43.75	59	72.75	87	96.50	115	120.00
31.5	44.50	59.5	73.00	87.5	97.00	115.5	120.00
32	45.25	60	73.50	88	97.25	116	120.00
32.5	46.00	60.5	74.00	88.5	97.75	116.5	120.00
33	46.75	61	74.50	89	98.25	117	120.00
33.5	47.25	61.5	74.75	89.5	98.50	117.5	120.00
34	48.00	62	75.25	90	99.00	118	120.00
34.5	48.75	62.5	75.75	90.5	99.50	118.5	120.00
35	49.50	63	76.00	91	99.75	119	120.00
35.5	50.25	63.5	76.50	91.5	100.25	119.5	120.00
36	51.00	64	76.75	92	100.75	120	120.00
36.5	51.50	64.5	77.25	92.5	101.25		
37	52.25	65	77.75	93	101.50		
37.5	53.00	65.5	78.25	93.5	102.00		

[1] "Old rates" are those of December, 1915.

(2) Machinist worked in January, 1918, 10 hours per day, 26 days, total 260 hours straight time.

The rate of pay for this position in 1915 was 34 cents per hour; new rate under this order, 48 cents per hour, but with minimum rate of 55 cents per hour as herein ordered will receive	$143.00
In January, 1918, his rate of pay was 37½ cents per hour; 260 hours equals	97.50
Difference 1 month	$45.50
On basis of working same amount of straight time each month for 5 months (January 1 to May 31)	227.50
Also worked in same period 90 hours overtime at pro rata rate, new 55-cent minimum rate, equals	$49.50
Was paid at 37½-cent rate pro rata overtime or	33.75
	15.75
Balance due January 1 to May 31, 1918	$243.25

(3) Machinist "D" was employed in the same shop in December, 1915, and in 1918 on the same class of work. His hourly rate in December, 1915, was 35 cents for 9 hours, 26 days a month. He was paid for overtime and Sunday work at time and one-half. On January 1, 1918, his hours were reduced to 8 and his rate increased to 40 cents. The new hourly rate applicable to his 1915 rate, viz.: 49½ cents being less than the minimum of 55 cents, his new rate will be 55 cents per hour. In 1918, from January 1 to May 31, he worked 234 hours per month or an average of one hour overtime daily on the 1918 schedule. This for five months gives him 130 hours overtime. He has been paid as follows:

1,040 hours straight time, at 40 cents	$416.00
130 hours overtime, at 60 cents	78.00
Total	$494.00

His back pay will be computed as follows:

1,040 hours straight time, at 55 cents	$572.00
130 hours overtime, at 82½ cents	107.25
Total	$679.25
Deduct payment at 1918 rates	494.00
Back pay due	$185.25

and his future rate per hour will be 55 cents.

(4) In the case of employee "E," who was employed in a shop where the rate for his position was 35 cents per hour for 8 hours' work in 1915, with time and one-half for overtime, but in the same position and same shop with the same hours in 1918 his rate is 45 cents per hour; his earnings in 1915 in the standard 208-hour month would be $72.80 per month, and he would be entitled to the new hourly rate of 49½ cents per hour. His straight time and overtime earnings and back pay would be computed in exactly the same manner as machinist "D." The principles illustrated will apply to all men paid by the hour, whatever their occupation may be.

Section D—Rates of Wages of Railroad Employees Paid Upon Piecework Basis

METHOD OF APPLYING INCREASES TO PIECE RATES

(1) The pieceworker shall receive for each hour worked, the same increase per hour as is awarded to the hourly worker engaged in similar employment in the same shop.

(2) If the hourly rate has been increased since 1915 to an amount greater than the increase herein fixed, then the higher rate shall prevail.

(3) Where there was no piece rate for an item or operation in the piece-rate schedule of 1915, adjust the current price by such an amount as a similar item or operation has been increased or decreased since December 31, 1915, or as near such a plan as practicable.

(4) It is understood that the application of this order shall not, in any case, operate to reduce current earnings.

(5) When a pieceworker works overtime or undertime, he shall receive that proportion of the increase provided in the schedule which the time actually worked bears to the normal time in the position.

(6) Overtime is not to be considered solely as the num-

ber of hours employed in excess of the normal hours per month in the position, but rather the time employed in excess of the normal hours per day.

(7) Employee "F" was employed under a piecework schedule in a shop where the basic hourly rate was 35 cents for eight hours, with time and one-half for overtime. This rate under the plan illustrated above will be increased to 49½ cents per hour. Difference, 14½ cents.

Regardless of the schedule of piece rates under which he is paid, under this order "F" will be entitled to receive 14½ cents per hour in addition to his piecework earnings for every hour worked in 1918 unless the hourly rate shall in the interim have been raised and a proportionate increase made in the piecework schedule.

For example: Assume that "F" made $90 in December, 1915, at his piecework. At the hourly rate he would have earned only $72.80, and his hourly rate must therefore be increased to 49½ cents.

If, in January, 1918, he has attained sufficient skill to earn $100 on the same piecework schedule, he will be entitled to receive, nevertheless, 14½ cents per hour for each hour of straight time worked, and for each hour of overtime, 21¾ cents additional (if time and one-half for overtime is in effect).

Assume that in the five months, January 1 to May 31, "F" has worked 1,040 hours straight time, and 130 hours overtime, and has, at his piece-work schedule thus earned $500.

He will be entitled, nevertheless, to receive as back pay, the following amount:

1,040 hours at 14½ cents per hour	$150.80
130 hours at 21¾ cents per hour	28.28
	$179.08

But if in January, 1918, the basic hourly rate had been increased to 50 cents, and this increase had been correspondingly expressed in his piece-work schedule, he would be entitled to no back pay. If, on the other hand, the hourly rate had been increased from 35 cents in 1915 to 45 on January 1, 1918, and this increase had been expressed in a corresponding increase in the piece-work schedule, then "F" would be entitled to receive back pay at 4½ cents per hour for straight time and 6¾ cents per hour overtime.

If the practice in the shop, however, had been to pay pro rata for overtime, then the rate for such overtime since January 1, 1918, would be pro rata at 4½ cents, or 14½ cents per hour, according to whether piece rates had been or had not been increased.

(8) Employee's December, 1915, rate was 38½ cents; which rate in this order for 8 hours per day entitled him to 54¼ cents per hour. His basic rate had, by January 1, 1918, been raised to 42½ cents per hour. Piece work rates had not been raised in the interval. This man earned in 208 hours $100. He is entitled to a raise of 11¾ cents per hour.

11¾ cents × 208:	
1 month	$24.44
5 months	122.20

Section E.—Rates of Wages of Railroad Employees Paid Upon Mileage Basis

The following rates will apply "per day" or its established equivalent in "miles":

Passenger engineers		Passenger engineers		Passenger engineers		Passenger engineers	
Old	New	Old	New	Old	New	Old	New
$4.10	$4.56	$4.53	$5.04	$4.95	$5.51	$5.55	$6.17
4.15	4.62	4.55	5.06	5.00	5.56	5.65	6.29
4.20	4.67	4.60	5.12	5.05	5.62	5.90	6.56
4.25	4.73	4.65	5.17	5.13	5.71	6.00	6.68
4.30	4.78	4.70	5.23	5.15	5.73	6.05	6.73
4.35	4.84	4.75	5.28	5.28	5.87	6.25	6.95
4.40	4.90	4.78	5.32	5.35	5.95	6.30	7.01
4.45	4.95	4.80	5.34	5.40	6.01	6.50	7.23
4.50	5.01	4.90	5.45	5.53	6.15	7.00	7.79

Passenger firemen		Passenger firemen		Passenger firemen		Passenger firemen	
Old	New	Old	New	Old	New	Old	New
$1.91	$2.46	$2.60	$3.35	$2.84	$3.66	$3.30	$4.25
2.25	2.90	2.62	3.37	2.85	3.67	3.35	4.31
2.33	3.00	2.65	3.41	2.90	3.73	3.40	4.38
2.34	3.01	2.69	3.46	2.95	3.80	3.45	4.44
2.40	3.09	2.70	3.48	3.00	3.86	3.60	4.64
2.42	3.12	2.75	3.54	3.05	3.93	3.75	4.83
2.45	3.15	2.76	3.55	3.10	3.99	4.00	5.15
2.50	3.22	2.78	3.58	3.15	4.06	4.15	5.34
2.51	3.23	2.80	3.61	3.20	4.12	4.25	5.47
2.55	3.28						

Passenger conductors		Passenger conductors		Passenger conductors		Passenger conductors	
Old	New	Old	New	Old	New	Old	New
$2.50	$2.89	$2.68	$3.10	$2.90	$3.35	$3.47	$4.01
2.60	3.00	2.75	3.18				

Passenger baggagemen		Passenger baggagemen		Passenger baggagemen		Passenger baggagemen	
Old	New	Old	New	Old	New	Old	New
$1.40	$1.94	$1.49	$2.06	$1.61	$2.23	$1.70	$2.35
1.45	2.00	1.54	2.13	1.65	2.28	2.00	2.77

Passenger trainmen		Passenger trainmen		Passenger trainmen		Passenger trainmen	
Old	New	Old	New	Old	New	Old	New
$1.35	$1.88	$1.47	$2.05	$1.50	$2.09	$1.60	$2.23
1.43	1.99	1.49	2.08	1.55	2.16	1.87	2.61
1.46	2.04						

Freight engineers		Freight engineers		Freight engineers		Freight engineers	
Old	New	Old	New	Old	New	Old	New
$4.25	$4.91	$5.05	$5.83	$5.40	$6.24	$5.90	$6.81
4.50	5.20	5.06	5.84	5.43	6.27	5.95	6.87
4.70	5.43	5.10	5.89	5.45	6.29	5.995	6.925
4.75	5.49	5.13	5.93	5.50	6.35	6.00	6.93
4.80	5.54	5.145	5.95	5.55	6.41	6.10	7.05
4.85	5.60	5.15	5.95	5.555	6.415	6.25	7.22
4.86	5.61	5.17	5.97	5.60	6.47	6.50	7.51
4.87	5.62	5.20	6.01	5.61	6.48	6.75	7.80
4.88	5.64	5.25	6.06	5.65	6.53	6.80	7.85
4.89	5.65	5.28	6.10	5.665	6.545	6.85	7.91
4.90	5.66	5.30	6.12	5.70	6.58	6.90	7.97
4.95	5.72	5.33	6.16	5.75	6.64	6.95	8.03
4.97	5.74	5.35	6.18	5.83	6.73	7.00	8.09
5.00	5.78	5.39	6.23	5.85	6.76	7.25	8.37

Freight firemen		Freight firemen		Freight firemen		Freight firemen	
Old	New	Old	New	Old	New	Old	New
$2.25	$3.02	$2.93	$3.93	$3.23	$4.34	$3.75	$5.03
2.36	3.17	2.95	3.96	3.245	4.355	3.80	5.10
2.45	3.29	3.00	4.03	3.25	4.36	3.90	5.24
2.47	3.32	3.01	4.04	3.30	4.43	3.905	5.245
2.50	3.36	3.03	4.07	3.35	4.50	3.95	5.30
2.56	3.44	3.04	4.08	3.40	4.56	4.00	5.37
2.59	3.48	3.05	4.09	3.45	4.63	4.05	5.44
2.60	3.49	3.07	4.12	3.465	4.65	4.10	5.50
2.70	3.62	3.10	4.16	3.50	4.70	4.125	5.535
2.75	3.69	3.13	4.20	3.55	4.77	4.18	5.61
2.78	3.73	3.15	4.23	3.57	4.79	4.25	5.71
2.81	3.77	3.16	4.24	3.60	4.83	4.30	5.77
2.85	3.83	3.19	4.28	3.63	4.87	4.50	6.04
2.87	3.85	3.20	4.30	3.65	4.90	4.55	6.11
2.90	3.89	3.22	4.32	3.70	4.97		

Freight conductors		Freight conductors		Freight conductors		Freight conductors	
Old	New	Old	New	Old	New	Old	New
$2.31	$2.78	$4.24	$5.11	$4.54	$5.47	$4.88	$5.88
2.90	3.49	4.25	5.12	4.55	5.48	4.96	5.98
3.46	4.17	4.27	5.15	4.63	5.58	5.04	6.07
3.63	4.37	4.38	5.28	4.64	5.59	5.08	6.12
3.85	4.64	4.40	5.30	4.66	5.62	5.10	6.15
3.90	4.70	4.42	5.33	4.74	5.71	5.14	6.19
3.975	4.79	4.43	5.34	4.77	5.75	5.21	6.28
4.00	4.82	4.48	5.40	4.80	5.78	5.67	6.83
4.10	4.94	4.50	5.42	4.83	5.82	5.69	6.86
4.13	4.98	4.51	5.43	4.84	5.83	6.12	7.37
4.165	5.02	4.52	5.45	4.86	5.86	6.45	7.77
4.18	5.04	4.53	5.46	4.87	5.87	7.09	8.54

Freight brakemen and flagmen		Freight brakemen and flagmen		Freight brakemen and flagmen		Freight brakemen and flagmen	
Old	New	Old	New	Old	New	Old	New
$1.60	$2.23	$2.70	$3.77	$3.02	$4.21	$3.48	$4.85
1.89	2.64	2.72	3.79	3.10	4.32	3.60	5.02
1.93	2.69	2.75	3.84	3.13	4.37	3.62	5.05
2.14	2.99	2.78	3.88	3.14	4.38	3.66	5.11
2.25	3.14	2.80	3.91	3.15	4.39	3.707	5.17
2.33	3.25	2.82	3.93	3.20	4.46	3.71	5.18
2.40	3.35	2.83	3.95	3.21	4.48	3.93	5.48
2.42	3.38	2.85	3.98	3.25	4.53	4.24	5.91
2.48	3.46	2.88	4.02	3.29	4.59	4.26	5.94
2.60	3.63	2.95	4.12	3.33	4.65	4.62	6.44
2.62	3.65	2.98	4.16	3.41	4.76	4.96	6.92
2.65	3.70	2.99	4.17	3.46	4.83	5.37	7.49
2.67	3.72	3.00	4.19	....	....	....	....

"Old" rates are those of December, 1915.

If there were mileage rates in effect in December, 1915, which are not included in the above tables, they shall be increased in accordance with the following percentages:

	Per cent
Road passenger engineers and motormen	11¼
Road passenger firemen and helpers	28¾
Road passenger conductors	15½
Road passenger baggagemen	38¼
Road passenger brakemen and flagmen	39½
Road freight engineers and motormen	15½
Road freight firemen and helpers	34¼
Road freight conductors	20½
Road freight brakemen and flagmen	39½

Method of Applying Increases to Mileage Basis

(1) Rates for overtime as now in effect, whether providing for pro rata basis or in excess thereof, shall be increased by same percentage as straight time rates.

(2) Miles run, in excess of the established equivalent of a day (or of a month where such basis prevails) shall be paid for pro rata.

(3) If any increase has been made in the mileage rates of employees paid on that basis in December, 1915, it will be understood that the per cent of increase allowed by this order is inclusive of such interim increases and that the new rate is computed from the base rates of December, 1915.

(4) Example (1): Engineer "G," passenger service, received $4.25 per day of one hundred miles in 10 hours in December, 1915. According to this plan, although in 1918 this rate was $4.25 per hundred miles in 8 hours, the rate will be increased 11¼ per cent to $4.73 per 100 miles ($4.7281 equalized as $4.73). He will be entitled to back pay for every 100 miles run at the rate of 48 cents per 100 miles.

Example (2):

Conductor through freight:		
2,950 miles at 4 cents, at new rate, would entitle him to 4.82 cents, or		$142.19
He was paid		118.00
Leaving to be paid		$24.19
He made 26 hours and 10 minutes overtime, equivalent, on basis of 12½ miles per hour, to 327 miles, which, at the increased rate of 4.82 cents per mile, entitles him to	$15.76	
Was paid, at 4 cents per mile	13.08	
A difference of		2.68
One month		$26.87
Five months		134.35

This principle will apply to all employees of the train and engine service who are paid on the mileage basis. There are some railroads in the United States upon which men in the train and engine service are paid on a monthly wage. Such employees will be entitled to the increased rates named in Article 2, section A.

(5) Since the application of the increases hereby granted will tend in individual cases to give increases greater than is appropriate or necessary to those train and engine men who make abnormal amounts of mileage and who, therefore, make already abnormally high monthly earnings, the officials of each railroad shall take up with the respective committees of train and engine men the limitation of mileage made per month by employees paid upon a mileage basis, so as to prevent employees now making such abnormal mileage profiting by the wage increases herein fixed greatly in excess of employees habitually making a normal amount of mileage. It shall be understood that any such limitation of mileage so arrived at shall not preclude the officials of a railroad from requiring a train or engine man to make mileage in excess of this limitation when the necessities of the service require it. The officials of each railroad will report to the regional director such arrangements agreed upon and any cases of failure to reach such agreements.

Section F—General Rules for Application of Wage Increases

(1) In the application of the scale the wage runs with the place. If in the past two years an employee has been promoted, his new wage is based upon the rate of increase applicable to the new schedule governing the position to which he has been promoted.

(2) In applying these percentages to the hourly, daily, monthly, or mileage rates for December, 1915, in order to determine the rates to be applied, beginning January 1, 1918, each decimal fraction over 1 per cent shall be equalized as follows:

Less than one-fourth of 1 per cent, as one-fourth of 1 per cent.

Over one-fourth of 1 per cent, but less than one-half of 1 per cent, as one-half of 1 per cent.

Over one-half of 1 per cent, but less than three-fourths of 1 per cent, as three-fourths of 1 per cent.

Over three-fourths of 1 per cent, as 1 per cent.

(3) These increases are to be applied to the rates of wages in effect on December 31, 1915. They do not represent a net increase at this time.

(4) As to the employee who may have been promoted since December 31, 1915, his increase will be based upon the rate of his present position as of December 31, 1915.

(5) As to the employee who has been reduced in position, his increase will be based upon the rate of his present position as of December 31, 1915.

(6) The new rates named herein, where they are higher than the rates in effect on January 1, 1918, will be applied to the occupants of positions that carried the rates in December, 1915.

(7) In those cases where increases have been made by the railroads since December 31, 1915, in excess of the amounts herein ordered, present wages shall apply, for in no instance shall the application hereof operate to reduce present rates of pay.

(8) Reductions in hours between December 31, 1915, and January 1, 1918, are not to be regarded as increases in pay.

(9) The wage increases provided for herein shall be effective as of January 1, 1918, and are to be paid according to the time served to all who were then in the railroad service or who have come into such service since and remained therein. The proper ratable amount shall also be paid to those who have been for any reason since January 1, 1918, dismissed from the service, but shall not be paid to those who have left it voluntarily. Men who have left the railroads to enter the Army or Navy shall be entitled to the pro rata increases accruing on their wages up to the time they left, and the same rule shall apply to those who have passed from one branch of the railroad service or from one road to another.

(10) This order applies to foremen, chief clerks, and others employed in a supervisory capacity, as well as to their subordinates.

(11) This order shall be construed to apply to employees of railroads operating ferries, tugboats, lighters, barges, and any other floating equipment operated as terminal or transfer facilities, but shall not be construed as applying to railroad employees on cargo and passenger carrying equipment on lakes, rivers, or in coastwise or ocean traffic.

(12) The provisions of this order will not apply in cases where amounts less than $30 per month are paid to individuals for special service which takes only a portion of their time from outside employment or business.

(13) Office boys, messengers, chore boys, and similar positions filled by employees who are under 18 years of age will receive the following increase per month:

$20 increase per month where December, 1915, rate was from $30 to $45 per month.

$15 increase per month where December, 1915, rate was from $20 to $30 per month.

$10 increase per month where December, 1915, rate was less than $20 per month.

Article III—Rules Governing Conditions of Employment

Section (a).—The Basic Eight-Hour Day

The principle of the basic eight-hour day is hereby recognized. Where employees are paid upon a daily or monthly basis, the new compensation herein established will apply to the number of hours which have heretofore constituted the actual day's work. For example, where an actual day's work has been 10 hours, the new compensation will cover the 8 basic hours and 2 hours overtime. Additional overtime will be paid pro rata.

Method of Applying Basic Eight-Hour-Day Rules

(1) Position which in December, 1915, paid $2 per 9-hour day:
Old rate, $2 per day.
New rate, $2.51 for 8-hour basic day.
Overtime, 31.4 cents per hour.
New rate, $2.83 for 9-hour service; 83 cents increase.

(2) Position which in December, 1915, paid $2.40 per 10-hour day:
Old rate, $2.40 per day.
New rate, $2.70 for 8-hour basic day.
Overtime, $0.68—2 hours, at 34 cents per hour.
New rate, $3.38 for 10-hour service; 98 cents increase.

(3) Position which in December, 1915, paid $75 per month, working 10 hours per day for 26 working days:
Old rate, $75 per month.
New rate, $84.60 per month basic 8-hour day.
Overtime, $21.15—52 hours, at 40.67 cents per hour.
New rate, $105.75 for same service; increase, $30.75.

(4) Position which in December, 1915, paid $100 per month, working 11 hours per day for 31 working days:
Old rate, $100 per month.
New rate, $95.82 per month basic 8-hour day.
Overtime, $35.93—93 hours, at 38.64 cents per hour.
New rate, $131.75 for same service; increase, $31.75.

Section (b).—Rates of Pay for Overtime

This order shall not affect any existing agreements or practices for the payment of higher rates of pay for time worked in excess of any standard day. Time worked in excess of the basic eight-hour day hereby established will, when there is no existing agreement or practice more favorable to the employee, be paid on a pro rata basis, as indicated in section (a) of this aritcle.

Section (c).—No Reduction in Total Increase

Pending consideration by the Board of Railroad Wages and Working Conditions hereinafter provided for, no reduction in the actual hours constituting a day's work shall operate to deprive any employee, paid by the day or month, of the total increase in pay granted him by this order.

Article IV—Payments for Back Time

Each railroad will, in payments made to employees on and after June 1, 1918, include these increases therein.

As promptly as possible, the amount due in back pay from January 1, 1918, in accordance with the provision of this order, will be computed and payment made to employees separately from the regular monthly payments, so that employees will know the exact amount of these back payments.

Recognizing the clerical work necessary to make these computations for back pay and the probable delay before the entire period can be covered, each month, beginning with January, shall be computed as soon as practicable and, as soon as completed, payment shall be made.

Article V—Employment of Women

When women are employed, their working conditions must be healthful and fitted to their needs. The laws enacted for the government of their employment must be observed and their pay, when they do the same class of work as men, shall be the same as that of men.

Article VI—Colored Firemen, Trainmen and Switchmen

Effective June 1, 1918, colored men employed as firemen, trainmen and switchmen shall be paid the same rates of wages as are paid white men in the same capacities.

Back pay for period January 1, 1918, to May 31, 1918, will be based only upon the increases provided in Article II of this order for such positions. Back payments will not apply to the further increased rate made effective by this Article.

Article VII—Board of Railroad Wages and Working Conditions

There is hereby created a Board of Railroad Wages and Working Conditions which shall consist of the following members: J. J. Dermody, F. F. Gaines, C. E. Lindsey, W. E. Morse, G. H. Sines, A. O. Wharton.

This board shall at once establish an office at Washington, D. C., and meet for organization and elect a chairman and vice chairman, one of whom shall preside at meetings of the board.

It shall be the duty of the board to hear and and investigate matters presented by railroad employees or their representatives affecting.

(1) Inequalities as to wages and working conditions whether as to individual employees or classes of employees.

(2) Conditions arising from competition with employees in other industries.

(3) Rules and working conditions for the several classes of employees, either for the country as a whole or for different parts of the country.

The Board shall also hear and investigate other matters affecting wages and conditions of employment referred to it by the director general.

This board shall be solely an advisory body and shall submit its recommendations to the director general for his determination.

Article VIII—Interpretations of This Order

Railway Board of Adjustment No. 1 is authorized by Article 9 of General Order No. 13 to perform the following duty:

"Wages and hours, when fixed by the director general, shall be incorporated into existing agreements on the several railroads, and should differences arise between the management and the employees of any of the railroads as to such incorporation, such questions of difference shall be decided by the Railway Board of Adjustment No. 1, when properly presented, subject always to review by the director general."

In addition to the foregoing, other questions arising as to the intent or application of this order in respect to the classes of employees within the scope of Railway Board of Adjustment No. 1 shall be submitted to such Board, which Board shall investigate and report its recommendations to the director general.

Similar authority may be conferred on any additional railway board of adjustment hereafter created.

Decisions shall not be rendered by such boards until after approval by the director general.

Prior to the creation of additional railway boards of adjustment to deal with questions as to the intent or application of this order as it affects any other class of employees, such questions, with respect to such employees, shall be presented to the Director of the Division of Labor, United States Railroad Administration, Washington, D. C.

Brazilian Coal for Government Railway.—It has been announced that the Brazilian Central Railway (a Government-owned line) has contracted with the Sao Jeronymo Coal Mining Company, which is extracting domestic coal in large quantities, for 50,000 tons of Brazilian coal. According to a report from Vice Consul R. P. Momsen, of Rio de Janeiro, the contract price is 50 milreis (about $12.50) per ton.

Interior View of the Large Passenger Car Shop.

New Grand Trunk Car Shops at Port Huron

Special Attention Given to Arrangement to Insure Distribution of Power and Possibility of Extension

WITH THE EXCEPTION of the installation of machines the Grand Trunk has completed the construction of a complete new layout at Port Huron, Mich., for the construction and repair of freight and passenger cars. Including tracks and buildings the new plant covers an area of 55 acres and represents an expenditure of more than $700,000. The layout includes two buildings for the repair of passenger cars with a total capacity of 27 cars, a steel freight car shop and a wood freight car shop each with a 28-car capacity, a repair track yard with a capacity for 200 cars and auxiliary buildings including a modern power plant, a cabinet shop, blacksmith shop, machine shop, wood mill, dry kiln, general offices and paint and general stores buildings, as well as a complete system of piping and fire hydrants for fire protection, watchmen's shanties and other facilities of minor importance.

One of the principal car repair shops for the Grand Trunk lines west of the St. Clair river has been located at Port Huron for many years. During the winter of 1914-1915 the old plant was destroyed by fire. Its loss was a serious handicap to the railroad and as its replacement with as little delay as possible was essential, work was begun on the plant as soon after the fire as plans could be prepared and the necessary property acquired.

The old plant which was built almost at the beginning of the road's operation was located in the older part of the city on the river front at the terminus of the line previous to the construction of the tunnel under the St. Clair river. It was small and inadequate and the site would not permit of the expansion necessary to meet present day needs. Furthermore its location precluded the provision of ample switching facilities. Consequently, after the fire, it was decided to abandon the old site and locate the facilities on property adjoining the tunnel line and convenient to the main switching yard and roundhouse. At this point it was possible to lay out the plant in such a way as to produce a minimum amount of switching and a maximum degree of efficiency in the handling of bad order cars.

The Plant

In planning the layout of the new plant special attention was given to the arrangement of the buildings with a view to the economical distribution of power and the possibility of extension and to ensure the materials being handled by a direct movement from the stores to the finished car. To this end as may be seen in the general map of the plant, the power plant and stores buildings occupy a central location with the various other buildings located conveniently about the central unit.

The passenger car shops include two buildings, the larger shop being 134 ft. 6 in. by 303 ft. 6 in. with a capacity for 15 cars. The small shop is 134 ft. 6 in. wide by 240 ft. long and has a capacity for 12 cars. The cabinet shop, the only two-story building in the layout, is connected to the small passenger car shop.

These shops are so planned that each car under construction or repair occupies one bay with an ample allowance for working space. The two buildings are parallel to each other with a space of 100 ft. between them which is occupied by a Nichols standard 80-ft. electrically-operated transfer table, designed to carry a 96-ton coach.

Both buildings are of concrete and brick construction with

3-in. plank floors and tar and gravel roofs. The roofs are designed with monitors running across the buildings, lighting and ventilating each bay. Additional light and ventilation are provided by the windows. The middle sash of alternate windows are hinged and metal sash chain-operating devices are provided for the ventilators in both the windows and monitors.

The cabinet shop is 53 ft. wide by 250 ft. long. The first floor is occupied by the glue room, acid room and the upholstering room. The cabinet work is done on the second floor. An electrically operated elevator is provided in this building. The freight car shops provide the facilities for the construction and repair of freight cars. These shops are divided into equal sections by brick fire walls, one section being devoted to steel cars and the other to wood cars. Both sections of the shops are planned for the cars to enter at one end. A repair track yard with capacity for 200 cars is located convenient to this shop.

Each division of the shop is 78 ft. wide and 360 ft. long, providing a capacity for 28 cars. In addition to the standing tracks, four of which are provided in each shop, both sections are provided with two service tracks. The arrangement of these tracks is shown in the sectional plan. The natural lighting and the ventilation plans are similar to those of the passenger shops, as is the construction with the exception of the floor, which is of mastic laid on a 4-in. concrete base.

The power plant consists of the boiler room 55 ft. by 98 ft. and an engine room 35 ft. 6 in. by 70 ft. This building is of concrete and brick construction, with a tar and gravel roof, carried on steel trusses, thus avoiding posts in the rooms. A brick partition separates the two rooms. The floor in the boiler room is of concrete, while a maple floor is used in the engine room.

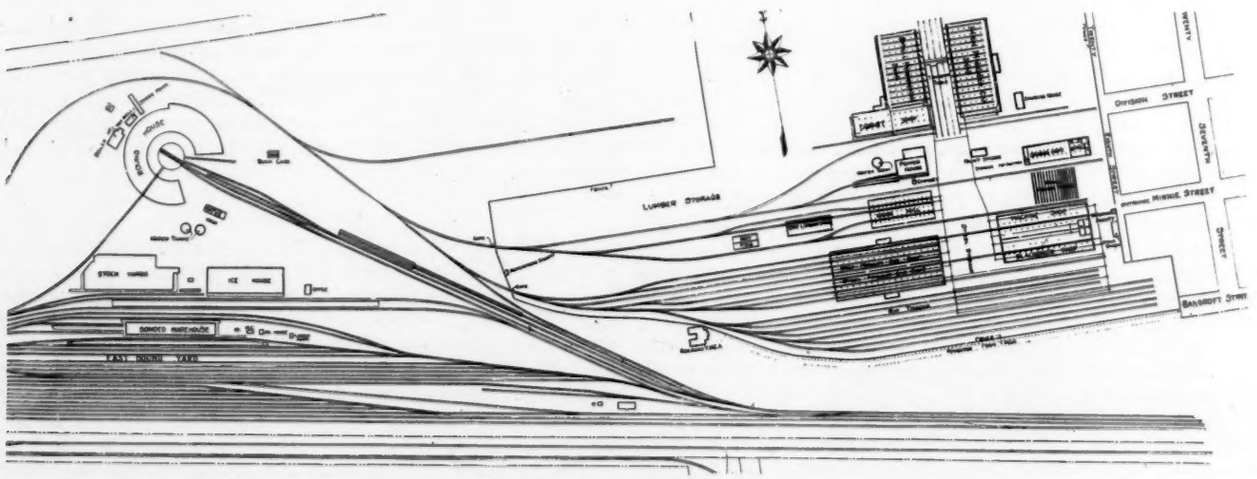
Three 200 b.h.p. and three 150 b.h.p. return tubular boilers are provided in the power plant, the boiler pressure being 150 lb. per sq. in. The boilers are fitted with superheaters giving 150 deg. superheat when coal is used and 200 deg. when wood refuse is used. Three of the boilers can burn either coal or wood, and three can burn coal only. They are adapted for hand firing because of the large amount of refuse of varied character which will be burned.

The boilers supply heat to the entire plant, power for two steam hammers in the blacksmith shop, and for testing out radiation in cars in the passenger car shops as well as for minor lines for heating water in the cabinet shop, glue room, etc. All steam lines are fitted with an asbestos insulating covering and are laid in concrete trenches in which space is also provided for steam return pipes, air lines to various buildings and tracks, water lines for fire protection and gas lines. Owing to the large amount of special work in painting and varnishing, the heating requirements in the plant are considerable, requiring about 50,000 sq. ft. of radiation, which is provided by means of cast iron radiators of the wall type and pipe coils distributed as required.

The brick chimney for the boilers is 150 ft. high, 13 ft. 5 in. in diameter at the base, and 6 ft. 6 in. in diameter at the top. It rests on a concrete base 30 ft. in diameter, and was built by the Heine Chimney Company of New York. The coal for the boilers is delivered direct to bunkers inside the boiler room by means of hopper cars discharging through a steel trestle having a capacity of two cars in the house. The ashes will be taken direct from the boilers through a pipe conveyor located beneath the floor in the building and rising outside to the proper height for delivery direct to a car. The ash ejector was furnished by the American Steam Conveyor Corporation, Chicago, and is operated by the ejection of steam from the boilers at the far end of the conveyor. The carpenter shop and woodmill are fitted with shaving exhaust systems, which delivers wood refuse to the boiler room. The draft for these systems is furnished by a fan arrangement.

The engine room contains two boiler feed pumps, two vacuum pumps, a fire pump, an open type water heater, and two air compressors of 2,500 cu. ft. combined capacity, of

Interior View of the Wood Mill



General Layout of the New Car Shop at Port Huron

the compound type, specially adapted for use with superheated steam. The superheat of these air compressors may be controlled by proportioning their supply of wet steam.

The machine and blacksmith shop building is 138 ft. by 299 ft. and is planned in a similar manner to the freight car shops, with a fire wall separating the two rooms. A cinder floor is provided in the blacksmith shop.

The woodmill is of frame construction and was built

The Machine Shop Nearing Completion

almost entirely of material, salvaged from a former industrial plant occupying the site. Metal lath and a 2-in. stucco finish gives the building an appearance in harmony with the others. The dry lumber storage building is also of frame construction with a stucco finish. This building also was salvaged in its entirety from the industrial plant and moved by a horse and winch one-quarter of a mile to its present location.

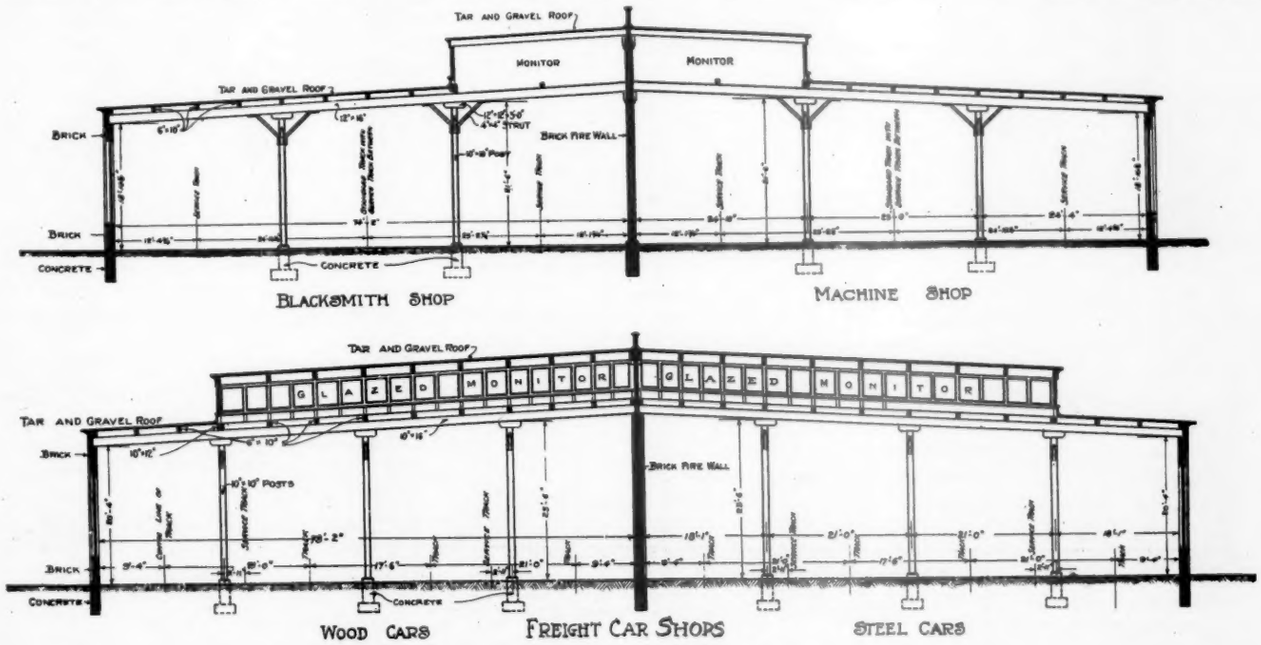
The drying kiln is a specially designed building of two compartments with doors at each end. This arrangement permits cars with lumber to enter at one end, and when dried to be removed at the other without any delay or inconvenience as a result of having to remove one car to get at or remove another. Each compartment is separate from the other and capable of being used independently. The heat will be supplied by means of steam pipes located below the rail level. A special system of air ducts will provide ample air changes which will be capable of regulation. Provision is also made for the introduction of steam as required to check too rapid drying. The walls and the roof are insulated by air cavities so that an even temperature may be maintained.

The general stores building is constructed on the same general lines as the car shops, and is provided with racks and shelves designed especially for the varied stores which have to be carried in stock. Office space for the storekeeper and his staff is provided at one end. The other buildings include the paint stores building, the battery charging room, and a bicycle storage room and a garage at the main entrance. The paint stores building and battery charging room are of fireproof construction.

The general offices are attached to one end of the stores building with a brick firewall between. The interior is divided by means of terra cotta hollow tile walls, and the exterior walls are furred with the same material. All interior walls and ceilings are plastered and painted.

The layout provides for ample storage space for wheels, steel, lumber, etc., and special attention has been paid to economical operation. Ample sanitary facilities and lockers are provided in each building for a full quota of workmen when the plant is in operation. Electrical energy for lighting and for the operation of the machines is supplied by the Port Huron Electric Power Company. Provision has also been made for fire protection by the erection of a 100,000-gal. steel storage tank, 100 ft. above the ground line, with a complete system of piping and fire hydrants situated at convenient points. The fire pump in the engine room draws water direct from the city mains and, in connection with the tank, a pressure of 60 lb. is maintained at all times. Hand fire extinguishers are also provided, one for every 2,000 sq. ft. of floor space, or 140 in all. Two fire houses, centrally located, are also provided.

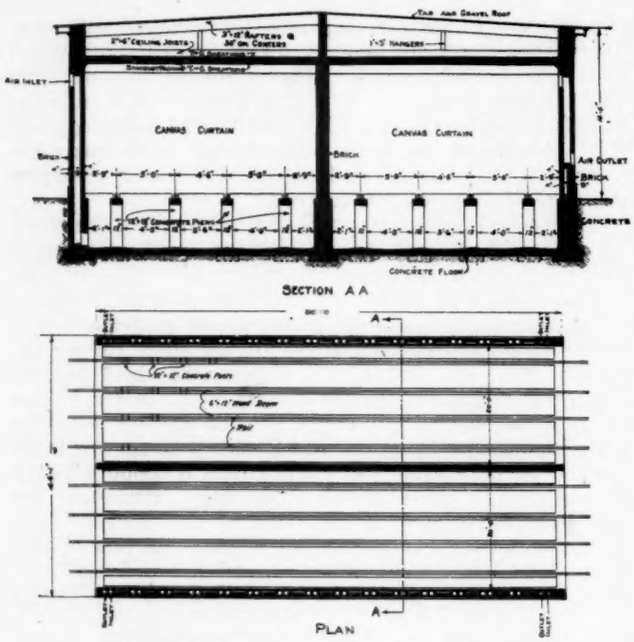
On a portion of the site acquired by the railroad were buildings of frame and brick construction which had been



Cross Sections of the Blacksmith, Machine and Freight Car Shops

occupied by an industrial plant. To utilize the land properly for railroad purposes these buildings had to be removed. From these and the old roundhouse and freight car repair shops which were wrecked after the fire, large quantities of usable material were salvaged and utilized in the construction of the new plant with a considerable saving in the requirements for new materials, time and money.

This salvaged material, in addition to an old building which was moved bodily to a new foundation and re-



Section and Plan of the Dry Kiln

modeled, included 517,000 ft. b.m. of timber of all sizes, 900,000 brick and miscellaneous materials. The new wood mill requiring approximately 35,000 ft. b.m. of timber was built almost entirely of salvaged materials and the second-hand timber was utilized in other buildings for plank flooring, sheathing, rafters, sleepers, forms for concrete, sheet piling, etc. The salvaged brick were used as backing in the new brick buildings.

The miscellaneous materials recovered included 400 wood and 30 steel sash, 8,600 lb. of steel rods, bars and angles which were used as reinforcing in concrete lintels and in foundation work, and 8,000 lb. of steel utilized for anchor bolts, dowels, straps and plates. Also, several thousand hangers and brackets used in connection with the heating equipment, etc., were manufactured on the site from second hand material by company blacksmiths. A considerable quantity of miscellaneous material such as pipe, fittings, valves, etc., were likewise salvaged from the industrial plant which was abandoned and a material saving in expense, as well as time, was effected by this arrangement owing to the rapidly increasing costs of new material and the difficulty in getting prompt delivery.

This entire project has been carried out under the direction of H. R. Safford, chief engineer of the Grand Trunk. The contractor was James Stewart & Company of New York.

Alba B. Johnson Elected President of Railway Business Association

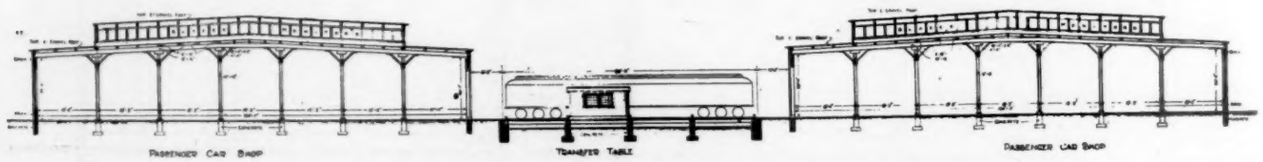
ALBA B. JOHNSON, president of the Baldwin Locomotive Works, was elected president of the Railway Business Association by the general executive committee at a special meeting held in New York, May 23, to take effect forthwith, George A. Post, who has served as president since the association was formed, having declined re-election. This was pursuant to authority given to the committee by the association at its convention in Chicago, April 8. The other elective offices, seven vice-presidents and treasurer will be filled later. The executive members, eight of whose terms have just expired, are appointed by the president. The secretary is a permanent officer during pleasure of the executive committee.

The committee on nominations and organization, in addition to recommending the election of Mr. Johnson, reported progress on organization to meet the problems arising out of adjustment to the new conditions in railway purchasing as discussed at the Chicago convention of the association.

It is expected that the election and re-organization will be completed at a meeting of the general executive committee to be called for some date in June.

Beside his work as a locomotive builder, in which capacity he is thoroughly familiar to the readers of the *Railway Age*, Mr. Johnson has for many years been active in the leadership of business organizations. He was chairman of several of the Foreign Trade conventions and president of the American Manufacturers' Export Association. He was the leader in the movement two or three years ago for strengthening and reorganizing the resources and service of the Philadelphia Chamber of Commerce, and is now president of the Pennsylvania State Chamber of Commerce. It was at the annual meeting of the Chamber of Commerce of the United States at Chicago in April that Mr. Johnson delivered his now well-known address urging a wide latitude for the individual railway manager in determining what locomotive designs are best adapted to the conditions under which he operates, and also urging that in whatever standardization might be attempted care should be taken to facilitate rather than obstruct mechanical progress.

News that Mr. Johnson had consented to undertake the presidency of the Railway Business Association was received on all sides with expressions of gratification that a man so engrossed in operations on as large a scale as Mr. Johnson should have regarded the work of the Railway Business Association as a call which he ought not to decline, and of confidence that with his prestige and personality he would command the hearty support both of the members and of many other manufacturers whom it is hoped to enroll in view of the new conditions under which railway purchasing is now done.



A Sectional View of the Passenger Car Shops

Doings of the United States Railroad Administration

Bituminous Coal Prices; the Federal Managers; Standardization of Operating Statistics

New Regional Directors

DIRECTOR GENERAL MCADOO has announced the appointment of N. D. Maher, president of the Norfolk & Western, as regional director of the new Pocahontas Region, with office at Roanoke, Va., and of B. L. Winchell, director of traffic of the Union Pacific System, as regional director of the Southern Region, with office at Atlanta, Ga., both effective on June 1. Mr. Winchell succeeds C. H. Markham, whose appointment as regional director of the new Allegheny Region, with office in Philadelphia, was announced last week.

The Pocahontas Region will include the Chesapeake & Ohio east of Louisville, Ky., Columbus and Cincinnati, O., including the Chesapeake & Ohio Northern, the Norfolk & Western and the Virginian and the terminals and harbor operations of all lines reaching Hampton Roads. In accordance with the policy announced by the director general last week that the regional directors, as well as the federal managers to be appointed in charge of the operation of each property, will be required to sever their official relations with the particular companies and to become exclusive representatives of the Railroad Administration, Mr. Maher has resigned as president of the Norfolk & Western and Mr. Winchell as director of traffic of the Union Pacific and both have severed all connections with corporate interests.

B. L. Winchell
Regional Director of the Southern Region

N. D. Maher
Regional Director of the Pocahontas Region

W. J. Cunningham
Manager, Operating Statistics Section, Division of Transportation.

Federal Managers

The director general's announcement of the plan of appointing federal managers for each railroad property has caused more comment than any action taken since the government assumed control of the railroads. The dramatic effect of a proposal to displace some 200 of such powerful individuals as railroad presidents have been popularly supposed to be has led to some misunderstanding of the purpose of the plan and undue prominence has been given in many of the published reports to the idea of friction and lack of co-operation between the railroad officers and the administration. While it is known that there have been some instances of friction it has been due primarily to an inherent difficulty in the situation. For a time the Railroad Administration apparently regarded the corporations as its agencies, but only a short time was required to demonstrate that the corporations and the government bore to each other the relation of landlord and tenant and the impossibility of an officer in authority being able to serve both at the same time with equal loyalty has become increasingly evident as the negotiations between the government and the representatives of the corporations regarding the contract for the compensation of the railroads have progressed. Some of the leading railroad counsel have been transferred from the operating to the corporate organizations, as have the chairmen of boards or of executive committees, and they have been free to represent the interests of the stockholders in their relations with the government unreservedly. But on some roads the president performs the function of chairman and the necessity for vigorously supporting the interests of the stockholders in dealings with the government while at the same time working for the government and in effect on its payroll as an operating officer has created an embarrassing position for many railway executives which was apparent on both sides. Moreover, many railway officers do not like some of the policies which the Railroad Administration is putting into effect and undoubtedly welcome an opportunity to retire gracefully from any active part in carrying out the government's program while continuing their former relation to their companies.

Pending the selection of the federal managers the railroad presidents will continue in charge of the operation of their properties, although the impression has been created by the newspapers that they were all deposed when the announcement was made that federal managers would be appointed. The selection of the federal managers is being made upon recommendations of the regional directors. It is probable that a considerable number of the presidents who are particularly operating officers will be retained in charge of operation as federal managers, leaving the corporations to be represented by the chairmen. It has already been announced that Samuel Rea, president of the Pennsylvania, and Daniel Willard, president of the Baltimore & Ohio, will remain with the companies rather than become identified

with the Railroad Administration. It is stated at Mr. McAdoo's office that this is of their own volition and that of their directors and that no special action has been taken in case of either of them, but it is understood that they were called to Washington recently and informed of the intention to appoint federal managers for their roads.

While the official statement referred to the preservation of the identity of each railroad as a unit except so far as may be necessary, the boundary lines of the new regions which have been created will place several large systems in two regional jurisdictions and it is understood that in the case of the Pennsylvania and possibly the Baltimore & Ohio and some other systems separate federal managers will be appointed for the eastern and western lines, reporting to the regional director for the territory in which the lines in their charge are located.

Railroads to Pay More for Coal

President Wilson has settled the protracted controversy between the Railroad Administration and the Fuel Administration as to the price to be charged the railroads for coal, by a compromise under which the railroads will pay the regular government price fixed for all consumers by the Fuel Administration, but instead of giving the coal operators the benefit of the increase it will be used to reduce the general price of bituminous coal by 10 cents a net ton. It is estimated that this will increase the railroad fuel bill by approximately $45,000,000 per annum, or an average of about 25 cents a ton, while it will save consumers in general about $60,000,000. The railroads have always obtained their coal at a price considerably below that paid by other consumers, because they use such a large proportion of the coal output of the mines and because they were able to guarantee a car supply to the mines producing railroad fuel coal. This reduced the overhead expenses of the mine operators. When the government prices for coal were fixed last year the railroads in most cases were not affected because they had already made contracts for the coal year beginning April 1. As these contracts were about to expire this spring, John Skelton Williams, director of the division of finance and purchases of the Railroad Administration, endeavored to have the railroad contracts renewed at a low figure, but the Fuel Administration took the position that the railroads should pay the same price as all other consumers. This would mean a large increase in the operating expenses of the railroads and the plan was opposed by the Railroad Administration, which took the position that there were sound business reasons for selling coal to the railroads at a differential price whether or not they were controlled by the government. The controversy was referred to President Wilson, who had already established a precedent by ruling that the government should pay the same price for steel and other materials that it had fixed for other consumers. The railroad officers connected with the administration, however, advanced the argument that if the railroad price was to be increased, the coal operators would thereby receive such a large additional profit as to justify a reduction in the general price and this position was finally sustained by President Wilson.

The Fuel Administration has, therefore, issued an order, under the authority of the President, directing that all prices for bituminous coal, f.o.b. mines in the coal producing districts throughout the United States, fixed by the executive order of August 21, 1917, and subsequent orders of the Fuel Administration, should be reduced as to all shipments made after 7:00 a. m. on May 25, 1918, by the sum of 10 cents for each net ton of 2,000 pounds.

Another question raised in connection with the dispute as to the price of coal involved the question of disposition of coal cars, the Fuel Administration urging the abolition of the practice of giving mines furnishing railroad fuel a preferential car supply. This point was resolved in favor of the Fuel Administrator. A statement issued by the Fuel Administration says that the reduction will mean an annual saving to consumers estimated by the Fuel Administration at $60,000,000, and that the increased cost of railroad fuel occasioned by the President's order is also estimated at $60,000,000 per annum. The reduction of 10 cents per ton on all coal will, however, reduce the net increased cost to the railroads from $60,000,000 to $45,000,000 per annum.

"Under the President's plan," the statement says, "the railroads will furnish cars to all coal mines alike without discrimination except as dictated by the prior requirements of the railroads for operating purposes and the needs of domestic consumers and of the war. Under the present war demands the maximum output of every mine, working at full time, would still be insufficient to meet the country's coal needs. The principle of equal car supply has accordingly been adopted so as to make for as steady an operation as possible of all properties and for continuous employment of men, thus making for maximum output. The introduction of the principle of even car supply will reduce the general average of overhead of mine operation and thereby justifies the administration in putting out a price reduction order."

The order has no effect on the price of anthracite coal.

Reduced Fares for Soldiers and Sailors

Under an order issued by Director General McAdoo, soldiers and sailors of the United States forces when furloughed and traveling at their own expense will be granted a rate of approximately 1 cent per mile for travel on railroads under control of the government. Agitation for reduced rates for soldiers and sailors has been going on for some time and several bills have been introduced in Congress for the purpose. The director general's statement said that the reduction was in realization of the fact that the payment of full railroad fare means a serious hardship to soldiers and sailors who desire to visit their homes before going overseas. The order is to be effective as soon as necessary details can be completed and the fare will be available on delivery to ticket agents of certificates signed by commanding officers. Such certificates of standard form will be prepared and distributed with the utmost promptness.

Committee on Operating Statistics

For the purpose of standardizing operating statistics and of keeping the Railroad Administration currently informed as to the results of railway operations as revealed by the statistics, the operating statistics section of the division of transportation has been created with W. J. Cunningham, James J. Hill, professor of transportation at Harvard University, as manager, and Joseph L. White, formerly statistician in the comptroller's office of the Union Pacific System, as assistant manager. To assist in the inauguration of the work, an advisory committee on operating statistics has been formed with Mr. Cunningham as chairman, and including also J. J. Ekin, general auditor, Baltimore & Ohio; J. G. Drew, vice-president Missouri Pacific; George R. Martin, vice-president, Great Northern; H. W. Mackenzie, comptroller, Seaboard Air Line, and W. C. Wishart, statistician, New York Central.

The operating statistics section has now been at work about three weeks and has received copies of the operating statistics forms used by the various railroads, which are being studied with a view to the permanent adoption of possibly seven or eight standard forms, which will not only be uniform in size and form, but will also employ units compiled on the same basis so that comparisons between different roads may be made on the basis of standard units. The idea is to introduce into the field of operating statistics a uniformity such as has been introduced into the accounting classification by the Interstate Commerce Commission. This will

enable the administration more readily to check up and compare the results being obtained on different roads. While the preliminary work of the committee consists principally of the initiation of a standard system of statistics it is to be continued with the function of collecting and analyzing the statistical returns.

Prof. Cunningham, who is on a leave of absence from Harvard University, has had an extensive experience in railway work and at the time he was appointed to the professorship in 1916 he was president's assistant on the Boston & Maine.

Transportation Charges Put on Cash Basis

The collection of transportation charges by carriers under federal control has been put on a cash basis, effective on July 1, by General Order No. 25 issued by Director General McAdoo, which provides that as of that date credit accommodations shall be cancelled which may be in conflict with the following regulations:

(1) Tickets shall be sold only for cash in advance of service. Baggage charges are subject to the same rule as tickets, except C. O. D. baggage and storage charges, which must be paid in cash before delivery.

(2) In cases where the enforcement of this rule, with respect to freight, will retard prompt forwarding or delivery of the freight or the prompt release of equipment or station facilities, carriers will be permitted to extend credit for a period of not exceeding 48 hours after receipt for shipment of a consignment if it be prepaid, or after delivery at destination if it be a collect consignment, provided the consignor if it be a prepaid consignment, or the consignee if it be collect, file a surety bond either individual or corporate, in an amount satisfactory to the treasurer of the carrier. The form of such bond shall be prescribed by the chief legal officer of the individual carrier, conditioned upon and providing for payment of all charges within 48 hours after forwarding or delivery of the freight. Upon receipt and acceptance of such bond a carrier may accept and forward prepaid consignments or may deliver collect consignments in advance of payment of all charges thereon to the amount covered by the bond. Failure to pay such charges within the time prescribed will automatically cancel such credit.

(3) Treasurers of individual carriers are required to arrange and conduct all matters relating to such credits. They shall designate the amount, and accept or reject the surety offered. Bonds may be required and accepted for individual consignments or blanket bonds may be accepted from individual shippers or consignees to cover all of their consignments for a given period: the period of the credit in such cases shall, however, be limited to 48 hours on each shipment as prescribed in the preceding paragraph.

(4) In case of any question as to the accuracy of charges, bills must be paid as rendered and claims presented for alleged errors. This will not prevent adjustments by agents of obvious errors.

(5) Freight consigned to "order" or to "order notify" shall be delivered only upon surrender to the agent of the carrier of the original bills of lading for such freight, and the payment of the freight charges thereon as herein provided. Provided, however, if such bill of lading be lost or delayed the freight may be delivered in advance of surrender of the bill of lading upon receipt by the carrier's agent of a certified check for an amount equal to 110 per cent of the invoice, or upon receipt of a surety bond either individual or corporate, acceptable to the treasurer of the carrier in an amount for twice the amount of the invoice.

(6) The extension or creation of local collection bureaus or agencies will be authorized by the director of public service and accounting, as and when such bureaus may be found to be necessary or expedient.

(7) Bonding or underwriting arrangements with respect to credits extended, now in effect by individual carriers, shall be discontinued as of July 1, 1918, or as soon thereafter as existing contracts are terminable.

(8) Advice of the foregoing regulations shall be promptly given to all to whom credit accommodations are now given to the end that the regulations may be put into effect at the time specified with as little inconvenience as possible.

(9) Payment of transportation charges by check will be considered as a payment in cash if the person, firm or company signing or endorsing it is known to the agent to be fully reliable. Checks are not to be taken or cashed by agents under any circumstances, except for transportation charges.

(10) Until otherwise ordered, the foregoing rules will not apply to transportation service rendered other departments of the federal government.

For the purpose of preventing inconvenience which might result from a rigid interpretation of the order, C. A. Prouty, director of the division of public service and accounting, has issued an explanatory circular as follows:

"The director general is about issuing an order putting the payment of all transportation charges upon a cash basis, and is especially desirous that this shall result in as little inconvenience as possible to the public. The rule should be interpreted in a practical business way. If, for example, the consignee who is financially responsible, is accustomed to send for his freight in the morning and the collection of the freight charge is effected in the afternoon, that should be treated as a cash transaction so long as the consignee continues to pay its freight charge promptly upon presentation of the freight bill. Similar application of the rule should be made in the collection of a prepaid charge from a shipper. That is to say, payment of such a charge if made on the day the shipment is forwarded will be treated as a cash transaction.

"The enforcement of the cash rule will require payment by the shipper and consignee, for the most part, without opportunity for the correction of errors in the freight bill, but in all cases where a mistake is obvious or where it is plainly indicated upon the face of the bill, the agent should make the correction before exacting payment.

"The director general is also anxious that the public shall understand that the reason for the promulgation of this order is to prevent discrimination between shippers and consignees. The extending of credit in the payment of transportation charges to one person while it is denied to another results in a preference in favor of the person to whom credit is given. While repeated attempts have been made in the past to check this evil, competitive conditions have rendered it impossible to do so. At the present time many shippers and consignees, especially large ones, enjoy with respect to many of their freight bills a credit not only of days but of weeks and sometimes of months. There seems to be no way of dealing with this except to enforce the cash rule.

"The director general further instructs me to say that he has under consideration rules, which will be promulgated in the near future, touching upon the settlement of overcharges and claims for loss and damage which he believes will result in the prompt and fair disposition of such matters with a minimum of inconvenience to the public."

Suits Against Carriers in Remote Jurisdictions

The Railroad Administration is taking vigorous steps to do away with the practice of prosecuting suits against carriers in remote jurisdictions, such as suits for personal injury, freight and damage claims, etc., which has caused a great deal of unwarranted expense to railroads in the past. In General Order No. 18, issued on April 9, the director general ordered that all suits against carriers while under federal control must be brought in the county or district where the plaintiff resides, or in the county or district where the cause of action arose. The order was later amended slightly in the interest of convenience. The director general has now issued a further general order, No. 26, to provide that such suits now pending shall not be brought to trial during the period of federal control, although new suits may be instituted in the proper place.

The order recites that "There are now pending against carriers under federal control a great many suits for personal injury, freight and damage claims, and that the same are being pressed for trial by the plaintiffs in states and jurisdictions far removed from the place where the persons alleged to have been injured or damaged resided at the time of such injury or damage, or far remote from the place where the causes of action arose; the effect of such trials being that men operating the trains engaged in hauling war materials, troops, munitions or supplies, are required to leave their trains and attend court as witnesses, and travel sometimes for hundreds of miles from their work, necessitating absence from their trains for days and sometimes for a week or more; which practice is highly prejudicial to the just interests of the government and seriously interferes with the physical operation of railroads; and the practice of trying such cases during federal control, in remote jurisdictions is not necessary for the protection of the rights or the just interests of plaintiffs."

It is therefore ordered that upon a showing by the defendant carrier that the just interests of the government would be prejudiced by a present trial of any suit against any carrier under federal control which suit is not covered

by General Order No. 18 and which is now pending in any county or district other than where the cause of action arose or other than in which the person alleged to have been injured or damaged at that time resided, the suit shall not be tried during the period of federal control; *Provided,* if no suit on the same cause of action is now pending in the county or district where the cause of action arose, or where the person injured or damaged at that time resided, a new suit may, upon proper service, be instituted therein; and if such suit is now barred by the statute of limitations, or will be barred before October 1, 1918, then the stay directed by this order shall not apply unless the defendant carrier shall stipulate in open court to waive the defence of the statute of limitations in any such suit which may be brought before October 1, 1918.

"This order is declared to be necessary in the present war emergency. In the event of unnecessary hardship in any case either party may apply to the director general for relief, and he will make such order therein as the circumstances may require, consistent with the public interest. This order is not intended in any way to impair or affect General Order No. 18—as amended by General Order No. 10-A."

Safety Work Being Organized

Rapid progress is being made by H. W. Belnap, manager of the safety section, with plans for establishing safety committees on every division of every railroad in the United States. While the majority of the roads in the past have had safety organizations, some of them have been much more active than others and Mr. Belnap, in consultation with some of the principal safety officers of the railroads, has been making a study of the various forms of organization with a view to establishing a uniform plan of organization on all of the roads and of prosecuting the work vigorously in all sections of the country. At a meeting in Mr. Belnap's office on May 23 and 24, attended by about 15 of the heads of the safety organizations of the larger roads, a general plan of organization was adopted, which follows closely the organization adopted by an auxiliary committee of the committee on transportation of the American Railway Association appointed in 1913 to consider the best method of promoting the widespread establishment of safety first organizations. Mr. Belnap is receiving hearty co-operation from the men that have been prominent in the safety first work on the railroads and is planning a vigorous campaign to extend safety and accident prevention work to every division. As there are approximately 1,000 railroad divisions in the country and as the safety committees will average possibly 20 men, it is expected that an organization of 20,000 men will shortly be engaged in the campaign for inculcating safety ideas among the railroad employees.

A. C. Needles, vice-president of the Norfolk & Western, has been appointed federal manager of that road and L. E. Johnson, chairman of the board, was elected president to succeed N. D. Maher, appointed regional director of the Pocahontas Region.

Short Lines

The question of the attitude of the Railroad Administration toward the short line roads is still arousing much interest and discussion. While a considerable number of such roads have already been practically relinquished at their own request, the names are not being made public pending the decision as to the others. A. H. Smith, regional director for the eastern railroads, recently gave out in a circular a list of 87 short line roads as having been relinquished. This has been rather widely published but at the offices of the Railroad Administration it is stated that a tentative list was given out through some error or misunderstanding and now Mr. Smith has issued another circular stating that it has been concluded to cancel the list and that the lines will be further considered. Meanwhile the railroad presidents were directed to countermand any action based thereon. Of the 87 in the list only 12 had been relinquished and some of them never were under federal control. Instructions were issued that the universal interline waybill must be used by roads not under federal control if they expect to use joint rates.

In connection with the short line situation John Barton Payne, general counsel for the Railroad Administration, wrote the following letter to Senator Overman on May 18:

"Apropos of your discussion of the Carolina & Yadkin River Railway:

"I beg to call your attention to the very great difficulties which the Railroad Administration confronts with reference to the short line roads. You know, of course, that many people believe that the government should take these roads and operate them. Many of them are not necessary for any government purpose, but it is a matter of profound interest that they be continued in operation, because they serve the highest needs of many local communities. What is best has given the director general and his staff great anxiety.

"I submit the following suggestions as to a solution of the problem:

"(a) If the roads are taken over by the government, there will be an immediate raise in wages of all employees in keeping with the wage adjustment which has just been made with the trunk lines, and there will be a demand for an improvement in service and an improvement in general conditions on the lines, so as to bring the roads up to the standard of the trunk lines. This will be due to the fact that they are under government control and the government should treat everybody alike.

"(b) It seems to me that the roads themselves, the communities, and the government will be benefited if the following happens:

"(1) That the government see that the short line roads have a fair division of the joint rates; in many cases heretofore they have not enjoyed a fair division.

"(2) Also an increase in rates—this must be by the state commissions—so as to keep them on a parity with the rates on the trunk lines, which must be raised to meet existing conditions; also the government will see that the roads are furnished, as far as possible, with an adequate supply of cars, so that they may serve the public, and that the freight shall not be so routed as to discriminate against these lines.

"Please advise me whether, in your opinion, if the administration adopts such a policy as is here outlined, it will not best serve the public and the government."

New Appointments

C. R. Capps, traffic assistant to the regional director of the Southern Region at Atlanta, Ga., has been appointed traffic assistant to C. H. Markham, regional director for the Allegheny Region, with office at Philadelphia, and A. R. Smith, vice-president in charge of traffic of the Louisville & Nashville, has been appointed traffic assistant to the southern regional director, with office at Atlanta, succeeding Mr. Capps.

The Troop Movement Section of the division of transportation has been created and George Hodges, chairman of the Committee on Relations Between Railroads of the American Railway Association, has been appointed manager of the section with office in the Homer building, Washington, D. C. The troop movement section will arrange for and supervise the details of the movement of troops with their impedimenta, routing, provision of equipment, etc. Mr. Hodges has been in charge of this work since the entrance of the United States into the war, first, as secretary of the Committee on Co-operation with the Military Authorities, later as general secretary of the Railroads' War Board, and since the government took over the railroads, as the representative of the American Railway Association.

Eugene McAuliffe
Manager, Fuel Conservation Section, U. S. Railroad Administration

R. H. Aishton
Regional Director, Western District, United States Railroad Administration

Thomas Britt
Chief Fuel Agent, Canadian Pacific

Annual Convention of the Railway Fuel Association

The Proceedings Were Dominated from Start to Finish By an Enthusiastic Spirit of "Win the War"

THE OPENING MEETING of the International Railway Fuel Association was reported in the *Railway Age* of May 24, 1918, page, 1287. In addition to the papers published in that number, addresses were delivered at the first day's session by R. H. Aishton and Thomas Britt. These are given in part below.

The Railroads and Their Relation to the Fuel Problem

By R. H. Aishton

Regional Director, Western District, United States Railroad Administration

I was appointed Western regional director last January, just about the time that we were in the thick of the fuel problem, and I give you my word that the railroad's relation to the fuel problem last winter was a big one. I never want to go through such an experience again; and neither do the railroad men. There were times when there was not four hours' fuel in this city. If, by any effort of mine, and any effort of yours, we can prevent that thing occurring again, let's do it. Unless we do it, the coming winter is going to be much worse than last winter.

Facing what we face now, this association has the greatest opportunity ever laid before any set of men in the world. Our duty plainly is to support the men in uniform "over there." Suppose that we get the same enthusiasm on this fuel question, the same patriotic impulse on the part of every man in the vast army of two million railroad men in this country, that was shown in the Liberty Loan drive. There would not be any fuel famine; there would be no difficulty. There would not be any railroad problem if we would just do that. If we save one scoop of coal an hour on each locomotive it will save 765,000 tons of coal, or 17,000 carloads a year. Does any man in this audience believe he cannot do that? You may think that it is putting a heavy load on the fireman or the engineer. But there are a hundred ways in which coal can be saved other than through the engineer and fireman, and there is scarcely a man on a railroad that does not have some relation to coal saving.

Take the man in the shop. The intelligence put into the work and its inspection has an immediate effect on the amount of coal a locomotive burns. The car man can have an immediate effect on coal consumption in the care of journals and lubrication. The train despatcher, with a little more energy and forethought in ordering his trains over the road, can save just as much as the fireman. The agent at the country station may keep a train waiting two or three minutes. The enginemen have to burn coal generously to make up the time lost through the agent's carelessness.

There has been a great shift in the movement of traffic in this country that very few people realize. When war broke out nearly four years ago it changed the flow from every coal-producing field in this country. Before the war all the vessels that came across the water were loaded with Newcastle coal, enough to bring them here and take them back. But the minute war broke out they reversed the operation. They took coal from us at Baltimore, Boston and everywhere else to carry them over there and bring them back. They couldn't get coal over there.

There was a tremendous growth of business in the Central Eastern manufacturing territory and New England. That shifted the movement of the coal in the West and the East, and we had to change the movement of our coal in Illinois, Indiana and Kentucky and take it into other districts. That readjustment is constantly going on.

Not only railroad men but the people who mine the coal can help. I worked in a mine myself once, and I know how much gob, as they call it, can come up in a car of coal, and I know what an awful muss it makes when you attempt to put it in the firebox. That is a point on which the miners can help.

What can the operator who sells the coal do? I know of coal being mined in Illinois that is hauled on one railroad three or four hundred miles to the city of Chicago and then switched to the line of another railroad; there is a direct line which reaches the same mine. We are trying to put in arrangements whereby, for instance, coal from the Burlington will come over the Burlington and not over the C. & E. I. and we are building up our terminals here with that end in view.

Then there is the consumer. I don't think the consumer has reached the point where he realizes that the saving of an hour or a day in the unloading of a car of coal means anything. He must realize that it may save some soldier's life over in France. All of us—railroad men, consumers and

everyone who has anything to do with this movement—must get into the attitude expressed in Order No. 8 issued by Director General McAdoo on February 21.

Suggestions for Saving Coal

By Thomas Britt

General Fuel Agent, Canadian Pacific

Mr. Britt, who attended the convention as the representative of Sir George Bury, chairman of the Canadian Railways' War Board, spoke in part as follows:

There is an apparent annual shortage of over 50,000,000 tons of coal to be made up by elimination of wastage. What are we going to do to conserve fuel and thus help win the war?

First of all—what are we doing? The most drastic feature of our program has been the reduction in passenger service with a simultaneous increase in freight traffic; this, of course, as a matter of sheer necessity to meet war requirements. In the handling of freight we are seeking to apply the well-established principle, that the greater the speed, the greater the consumption of coal. Hence fast freights are by no means a desideratum. In addition we have endeavored to run our freight trains at full capacity tonnage, thus securing the maximum results with the minimum of fuel consumption. Another feature of fuel conservation is the elimination of needless delays by a careful arrangement of schedules and rapid despatching.

To say that good engineering is an essential element in the process of conserving fuel is to mention a basic principle. Our locomotive and boiler-house firemen cannot be too well instructed on this point; with them, in the final analysis, rests the successful issue of our present campaign. Mechanical devices such as superheaters, automatic fire doors, etc., may accomplish a great deal in avoiding unnecessary wastage, but certainly the human element is the dominant factor—we cannot get away from it. Give us a body of expert and conscientious firemen, and I dare say the problem is solved. Our firemen are as loyal as any group in the service, but quite frequently they fail to grasp the seriousness of the situation that confronts us, as well as the importance of the occupation which is theirs.

Another tangible means of saving coal to win the war is to substitute wherever possible, utilizing gas-house coke for heating stations, etc. A considerable amount of scrap wood can be utilized as fuel in shop boilers; old ties can be gathered up and burned for the same purpose.

I might more earnestly ask in exchange for our share in this worthy enterprise that our railroads be not overburdened any longer with a lot of foreign matter under the guise of coal. I have found it necessary to have whole carloads of this extraneous matter dumped into the ditch, it being absolutely worthless as fuel for any purpose. There is certainly no economy there. The situation is much worse if such matter finds its way into ships' bunkers—transports especially—for then the lives of thousands are placed in needless jeopardy. A remedy must be found for all this, and I have no doubt that the government will insist upon the proper cleaning of coal at the mines.

The overloading of tenders has been the cause in the past of an incalculable waste. Thousands of tons have been lost by scattering coal along the highway. Measures have been taken to avoid this frightful deficit, and yet observation along the right-of-way of our railroads would indicate that there is still room for improvement. Ashpits also are frequently a source of wastage.

Looking at the question in a broad way, is it not quite evident that we are just beginning to wake up to the necessity of economy? Moreover, have we not literally squandered our inheritance by failing to economize? Now that the times are critical, we are endeavoring to amend matters. The pinch of want together with the soaring of prices are making us all realize that our only salvation lies in saving.

The Need for Fuel Conservation

By P. B. Noyes

Director, Bureau of Conservation, United States Fuel Administration

The solution of the war fuel problem is a task quite beyond the power of any administration or administrator. It lies in the hands of a thousand agencies and millions of men. It is because the men gathered here can do more to help the Fuel Administration serve the war than any similar group in the country that Mr. Garfield has taken such a keen interest in this convention.

The coal supply is short. Last winter it was short and the immense new requirements for war purposes threaten to make it shorter still the coming winter. The data we have compiled show that 625,000,000 tons of bituminous coal will be needed this year. The mines which must get out the coal, and the railroads which must carry it, were pressed nearly to their limit before the war. They cannot take on 200,000,000 tons of additional production. Fix your minds on what you know of the burdened condition of the leading railways three years ago. Add to this the tremendous burden of war supplies, troop transportation, material for ship building, and food for our Allies, and then picture to yourself what it means to those same railways with facilities little if any greater than three years ago, to provide transportation for 200,000,000 additional tons of coal. Conceive of this increase as 16 solid trains of gondola cars filling 16 tracks from New York to San Francisco. A veritable freight yard filled with coal cars extending the breadth of this continent. And this represents only the *increase* of coal transportation demanded of the railroads. All of those four million cars must be switched in and out and carried hundreds of miles by our already burdened transportation system if war demands are to be met and the usual industrial life of the country be at all preserved.

The coal business is in physical proportions so far beyond any other business in the country that emergency remedies which can be successfully applied to any of the others will hardly make a dent in the coal shortage. To meet the demands this year 12,500,000 tons of bituminous coal must be hauled every week. And yet, the success of the war is likely to depend just on this supply of coal. Coal to manufacture supplies and ammunition on a greater scale than Germany, and coal to transport these supplies and transport millions of men both in this country and across to Europe, is the first essential of our success. Behind this we have the necessity for coal to maintain life at home, to preserve our economic system and keep our ordinary industries running and keep labor employed. As much coal as was mined last year will be needed this year for war purposes alone. We must save 65 or 70 million tons or go to the restriction of so-called non-essential industries.

There has been much talk of shutting down non-essential industries but a little investigation shows that only a short distance down this road lies financial ruin and unemployment of labor on a scale which would bring disaster at home and failure in war. At least twenty billion dollars of capital is invested in legitimate manufacturing enterprises producing goods not strictly needed for the war. Ten million men support their families from the work they do in these factories.

All responsible agents of the government now realize that keeping labor reasonably employed and only taking it away from non-war work as fast as it can be employed on war work, is nearly as important for success in this war as the manufacture of munitions and ships. Granted that we must have 100 per cent fuel for munitions and ships, we shall fail as a nation if we do not provide this without a complete breakdown of our industrial system.

Here is a new aspect of fuel economy. You have often

been told how a shovelful of coal saved means more guns and more ships and more supplies for our soldiers. Have you realized that the only hope of keeping our other industries going and the great working population of the country prosperous and happy lies in a greater production of coal than seems at this time possible, or in a saving of coal now wasted by carelessness?

Fuel is a small part of the raw material of most manufacturing institutions. The fuel expense in most highly organized industries is little over one per cent of the total cost of the goods. On the other hand, this one per cent. is absolutely vital. Without it the factory closes. The other 99 per cent are useless. We are called upon to view a ton of coal as equal to five or six hundred pounds of ship plates or shells, but every ton of coal saved for our factories means the employment or non-employment of a hundred men.

This is the new idea I wish to bring you today. That over and beyond the desperate need of coal for war purposes lies an equally desperate need of coal to preserve the lives and happiness of the population. The threatened shortage of coal can easily mean unemployment and financial ruin.

Those of you here who produce coal should realize that every extra ton you take out of the mine is likely to keep a hundred extra workmen from idleness and you who are responsible for consuming the coal can enjoy the thought, when faithfulness and care have saved a ton, that you have thereby made a hundred families happy. If you remember that railway locomotives burn more than a quarter of all the coal mined in the country, you will not accuse me of exaggeration when I say that it is in your power and in the power of the railway firemen and the organization with which he works to save enough coal to turn threatened national disaster into national prosperity.

Fuel economy on a scale which will really save the country from industrial disaster demands first, a study of methods and, second, a willingness to take pains. I am especially interested today in getting through to you the full significance in this crisis of every man's "doing his best."

It has been rightly said that if every man who burns coal will do the very best he knows how without a word of new information, the saving effected will result in plenty of coal for every purpose. Under the present stimulus, I credit every one with giving more attention to economy than ever before, but this matter of doing one's best is relative. It is proportioned to the background of necessity which lies in our minds.

Few men ever reach 100 per cent of their possible efficiency. Most of us never reach 50 per cent. Any man who through enthusiasm or other stimulus, gets up to 75 per cent of his possible, is a brilliant success in his field of endeavor. The background of this terrible war is raising the efficiency of every man and woman in the United States. The more the meaning of the war has come home to us, the more we have approached our possible efficiency. This is a real force and should be applied directly to fuel economy.

There has been much discussion as to what will "win the war." Not every one, I fear, has faced the terrible alternative of what it would mean to lose the war. Let me tell you what I think it would mean.

Only once in civilized times has a single race dominated the world. Only once has a swollen tyranny proved so powerful that no human power could oppose it. The Roman Empire was such a world dominion—brutal, resistless. The Roman Empire could not be destroyed from without—it died from internal decay. But what did this mean to the world? The Roman Empire was one thousand years decaying. A thousand years known in history as the "dark ages." For a thousand years civilization and all that it stands for went backward into darkness.

Here is the black threat of the present struggle as I see it. Another brutal autocracy threatens to slip the leash and get beyond the power of civilization's curb. Another world dominion, another Roman Empire. And it is not of the tyranny, the slavery and misery of that world empire in its heyday that I am thinking. It is of the ages of decay. For a thousand years, perhaps five thousand, the world would struggle in darkness while the German Empire was decaying. In my mind, we are not struggling for the happiness of our children or grandchildren. It is for 50 generations which, if we fail to win this war, may flounder in the black mire of a powerful but decaying German Empire.

It is with such a background that I appeal to you to make the efficiency of your work one hundred per cent perfect. Start today the real campaign, the most practical campaign, the every-man-do-the-best-he-knows-how-campaign. Miraculous results will follow.

P. B. Noyes
Director, Bureau of Conservation, United States Fuel Administration

John P. White
Labor Advisor, United States Fuel Administration

Harry N. Taylor
Vice-President, Central Coal & Coke Company

A paper on the fuel oil situation was prepared by M. L. ReQua. In his absence the paper was read by Robert Collett, assistant manager of the Pierce Oil Corporation.

The normal increased consumption of fuel oil for the year 1918, based upon the average increase over a period of 14 years, will approximate something over 20,000,000 bbls. An abnormal increase, due to war conditions, will probably greatly add to this amount.

The only possibility for reduction in consumption is that induced by high prices. To what extent this may retard

business is uncertain, but the consensus of opinion is that it will have small effect owing to war conditions. We are, therefore, faced with the necessity of handling a tonnage considerably in excess of last year, viewed solely from the standpoint of railroad transportation.

As you are aware, a large percentage of the tank steamers which have hitherto supplied the Atlantic coast refiners with their supply of crude oil from Mexican and Gulf ports have been taken over by the navy for trans-Atlantic service.

As a consequence a material readjustment in transportation facilities becomes necessary. The deficit caused by the taking over of the tank steamers, as well as by the increased consumption, will have to be made up by increased pipe-line and tank-car movement. Arrangements have been made by which crude oil deliveries by pipe line to the Atlantic coast will be increased about 26,000 bbls. per day—which is equivalent to about 20,000 bbls. per day of fuel oil. Still further increases in pipe-line capacities are under way which will materially increase their efficiency. But at the very least calculation an additional rail movement in tank cars of about 100,000 bbls. per day will be necessary in order to take care of the urgent fuel oil requirements in the Atlantic coast territory.

Production of oil in the United States is divided, approximately, in the following proportions: California 30 per cent; Wyoming, 3 per cent; Texas and Louisiana, 17 per cent; the mid-continent field of Kansas and Oklahoma, 40 per cent; Illinois and Indiana, 4 per cent; and Pennsylvania, 6 per cent.

If coal were available it would be highly desirable that the use of oil be discouraged wherever possible; but unfortunately conditions governing the supply of coal are also acute. We are stating the problem, therefore, from the viewpoint of the oil division of the Fuel Administration, in the hope that, if conditions make it possible, the substitution of coal for oil may be made wherever practicable.

It will be necessary to move a great many trainloads of fuel oil for the shipping board and the navy from Texas or Oklahoma to the various ports on the Atlantic coast, and the supply of tank-car equipment will be taxed to its utmost to fill the requirements; consequently any saving in this movement, by substituting coal for oil in the territory east of the Mississippi and permitting the fuel oil so saved to move by the shorter distances from the Indiana-Illinois fields and from the Pennsylvania fields to the Atlantic coast, will represent a very great saving in transportation.

Another feature of our problem is to convince the consumers of petroleum products of the necessity of increasing their storage capacity and to take advantage of the summer months to accumulate storage to carry them over during those months when the transportation facilities will be congested. This applies equally to the railroad companies and those industries that have been in the habit of living from hand to mouth, as it were, in the matter of their oil supplies.

A campaign of education for the prompt unloading of tank cars by the railroad shops is very urgent. Motive power departments particularly have a habit of partly unloading a tank car at one shop, then switching it to another division point for further unloading. In this way they are responsible for the outrageous abuse of tank cars of private ownership.

The probability of the return of any of the tank steamers which have been commandeered by the navy, or for the construction of new tank steamers before the spring of 1919 is very remote; consequently it is of vital importance to the war program that the oil division of the Fuel Administration should have the thorough co-operation and support of the coal men and the railroad men to prevent a fuel oil famine and a return of the conditions which obtained during January and February of this year.

What the Coal Operator Can Do

By Harry N. Taylor

Vice President, Central Coal & Coke Company, Kansas City Mo.

There are three great factors concerned in this question of fuel supply and distribution, any one of which can render helpless the other two—the producer, the transporter and the consumer.

The producer may be ready to ship the coal and the consumer be ready to take it; but if the transportation is lacking, the other two are helpless. The railroads act in a dual capacity in relation to the fuel situation—they are both transporters and consumers; but viewing them from their primary standpoint—transporters—let me say that I believe no body of men in this broad land of ours is more alive to the importance of the work before them, or will more patriotically perform their duties than the great army of railroad men.

The coal operator, whom we class as the producer, is passing through the most extraordinary period in the history of his industry. He is confronted with the most tremendous task of supplying an ever-increasing demand, while the means at his command are being constantly curtailed and production threatened. His men are being enlisted or drafted into the army, his machinery is wearing out through constant use during the strenuous year just passed; there is little hope of replacement, owing to the heavy demand made on all machinery manufacturers for war supplies.

His allies—the railroads—are also being called upon to move an extraordinary tonnage created by war demand, which taxes them beyond their power of performance. This necessarily hampers the coal operator, through lack of motive power and shortage of car supply. Surely we are all confronted by a great task, calling for determination and courage if it is to be successfully accomplished; but that is just what must be done. Every one of us must first think, then plan, then do, and the do must be spelled with a capital D.

The railroads, the second link in the problem, have had in the past five or six years a situation very similar to that of the coal operator. Constantly increasing costs of labor, material and supplies, with no means at their command to increase revenue to meet the demands made upon them, they have fought manfully against these adverse conditions, and have done wonders with the resources at their command. Now that the extraordinary demands of the war are forced upon them, they face difficulties seemingly insurmountable.

In the past few years many roads have been forced into actual bankruptcy, while others were forced to make heavy drafts on surplus earned in the past to provide motive power and cars to meet these emergencies. For years the big shippers of coal have done all they could to aid the railroads, by joint appeal to get permission to increase rates, so as to make a fair return for service rendered, and to provide means for adequate motive power and cars properly to conduct their business. This was done, not because the coal men are philanthropists, but because they realized that unless this was done they would pay far more dearly for enforced idle time at their mines for lack of adequate car supply than they would pay through a reasonable advance in rates.

The demands of the public for coal supply now requires steady and full running time at all mines, six days per week, every week in the year.

When the legislative bodies governing railroad operations finally realized the true situation, and were made to believe what the railroad managements had been saying for six long years, a change in conditions had arisen, which, even with increased revenue, made it almost impossible for the railroads to secure the necessary equipment, owing to congested conditions in all manufacturing establishments.

Link number three in the problem is the consumer. The consumer now finds the situation up to him, and as yet only

a comparatively few have realized the great responsibility resting on the vast consuming public, if the threatened shortage in coal supply is to be overcome.

Although the figures available at Washington show that there was produced in the year 1917, 550,000,000 tons, in round figures, of bituminous coal, while the largest production in any previous year was 503,000,000 tons, still in the face of the fact of this extraordinary increase in production, the year 1917 found this country so short of coal that even though the figures showed a splendid increase the country faced an actual coal famine. Every railroad, manufacturing interest and individual consumer was brought face to face with a shortage of supply, the like of which was never before experienced. In ordinary times, this great increase of almost 50,000,000 tons would have found the coal industry demoralized by over-production, while the actual condition in the war year of 1917 found us destitute of fuel in many parts of this broad land of ours, found our war preparations hampered, found our railroads and manufacturing plants crippled, and threatened the successful outcome of the war.

Coal was the main-spring of industry in peace times, but it is the very heart and sinews of the country's welfare in times of war. We have had the experience of 1917 to guide us as to our duties and necessities for 1918. We know we must produce 50,000,000 additional tons of bituminous coal in 1918 over and above the production of 1917, if we are to meet the demands and necessities of the war.

There are two ways by which the threatened shortage in coal supply can be overcome: First, by increased production; second, by conservation. Every effort is being put forth by the coal operators and miners' organization, the individual miner and the railroads to produce the maximum tonnage.

The records of production as reported from Washington from week to week since January first are not entirely satisfactory. One week we show a little gain, and another week we show a little dropping back. This record, so far this year, compared with the previous year, on the whole shows a little gain, but not enough to spell security.

We can make a splendid inroad into the shortage ahead of us if we will pay special attention to the conservation of coal, and conservation must be called upon to a greater degree this year than ever before, if we are to meet the war necessities. If the coal operator will see to it that the miner gives him clean coal, and if the miner will follow out his patriotic duty and clean the coal, as he should, at the face, by the elimination of impurities, we will relieve the railroads of the necessity of hauling the impurities, we will add greater efficiency to the performance of the locomotive power, and aid in the movement of trains. Clean coal will add to the efficiency of every manufacturing plant and every warship and transport, giving more speed to industry, and will help win the war by adding efficiency as well as supply.

By eternally trying to produce, and infernally trying to conserve, with every effort we have within us bent towards the end of our patriotic duty, with the great consuming public alive to the real situation, with every citizen a helper, not a knocker, we can and will meet this great need of coal.

What the Coal Miner Can Do to Help

By John P. White
Labor Adviser, U. S. Fuel Administration

There are upwards of 700,000 men employed in and around the coal mines. This vast army of men engaged in this very important industry plays a great part in the prosecution of the war, because upon the success of coal production largely depends the efficiency of our nation in this crisis.

The miners early realized that it was necessary to stabilize conditions during the period of the war, and when the Washington wage scale was negotiated by the miners and operators and approved by the Government, an advanced step was taken towards the attainment of maximum coal production. At no time in the history of the mining industry has there been such peace and tranquility as now prevails, and it is due to the fact that both operator and miner realize the duty they owe to the government in this crisis.

The coal miner by loading every available railroad car can aid in increasing the production of coal for transportation to the various markets of the country. During last winter's severe fuel shortage the miners in many localities in this country worked on holidays and Sundays in order to relieve the situation. If an adequate car supply can be regularly maintained in the principal coal producing districts of the country by the railroads, there will be no need for alarm about shortage of fuel, because we have an abundance of coal and a great army of the best coal miners in the world. If given steady employment the 87,000 mine workers in Illinois could produce 150,000,000 tons of coal annually instead of working 160 days and producing less than half that amount.

If the operators, the miners and the railroads co-operate, an abundance of coal for all needs, domestic and otherwise, will be supplied. My knowledge of the miner leads me to believe that he is willing and anxious to enter upon team work in this matter with his employer, the government and all concerned, if given the proper opportunity; and it is only by this method that maximum results can be obtained. The miner has always been a man who loved his independence and he can be relied upon to contribute his full effort when approached in the proper spirit. In other words, he will co-operate, but cannot be driven.

The miners sense their duties in this war as keenly and as loyally as any other group of citizens. They are engaged in a most hazardous occupation and are entitled to the sympathetic co-operation of the government and the public, as well. They are a militant body of men that love their rights, and their organization, which is the labor expression of the mining industry of this nation, has been one of the greatest agencies we have, in my humble judgment, for the promotion of industrial peace during this war.

The coal operator should see that the individual working place is ready for the miner so that he may load his day's output of clean, marketable coal; the railroad should endeavor to see that the cars which are promised are at the mines; and the miner can afford to relax those rules which in normal times he feels justified in maintaining and take into consideration that we are now engaged in the greatest war in the history of mankind. Team work from the forces herein enumerated, including the government through its Fuel Administration, will make it possible for our men at the front and our Allies to be supplied with everything necessary to the successful prosecution of the war.

Individual Effort Toward Fuel Saving

By Eugene McAuliffe
Manager, Fuel Conservation Section, Division of Transportation, United States Raiload Administration

The most important angle of my subject to which consideration should be given, is that of individual effort, greater effort, a more unified effort than we have in the past attempted. We are making tremendous strides toward greater individual effort. We have passed the first mile post; but what we who remain at home, we, the real reserve force of the American army must do, is to complete the work of reconstruction of our daily lives so as to make ourselves a living, breathing, fighting part of the country's military force, standing unalterably behind the men at the front.

War is a contest, not alone of fighting skill, but of mining skill in tons output; of railroad skill as measured by raw and finished materials moved; passengers, including soldiers and sailors, moved. We are as I said before, soldiers all,

perhaps ununiformed, but standing behind our boys who are the first line troops, standing behind that first line in solid formation with every faculty alert and active, every muscle strained, ready and anxious to give support when the assault comes and not a shifting, careless, care-free dollar-seeking crowd, careless of the measure of duty we perform, indifferent to the quality of the material we produce; indifferent as to whether it arrives on time or otherwise. There can be no middle course, we must take on more responsibility. More work. One-third of the man power of the country, or more than ten million men are now directly, or indirectly, engaged in the war and the end is yet far off. The casualty list, as yet a tiny, trickling stream, will soon grow into a brook; it will pause as it runs past the door of many, many an American home. If we are to prevent this brook from growing into a river, a river of American and Allied blood, we must as miners and railroad men, mine coal, mine clean coal, move coal and save coal; we must crush our individual prejudices, our likes and dislikes. We must "Carry On"! Can we not as miners and railroad men strip ourselves of all passion for profit; all controversy and prejudice; all obstruction, of whatever character; and go out with the determination to forget self; with the firm determination to follow our ideals, the successful conclusion of which will offer worldly opportunity without end?

At this time I can only urge effort, studied effort, along the lines you men of experience well know; with the maximum of patience in dealing with the thousands of new men who are entering the mines and the transportation service. A little more effort, a trifle better understanding of the supreme necessity of completing the task we have begun, looking to the present hour as one of cheerful sacrifice, the future one of return, in spiritual and material wealth.

You have been asked to come to this meeting, perhaps at material sacrifice to yourselves to assist in launching a coal conservation movement inaugurated by the United States Railroad and Fuel Administrations. What has been said in the past two days should inspire us all to greater effort. This meeting of coal miners, coal operators and railroad men, suggested an opportunity to make a stentorian appeal for more coal, cleaner coal, and the saving of coal and fuel oil.

Other Business

Warren S. Stone, grand chief of Brotherhood of Locomotive Engineers, who was on the program of the first day's session, was unable to attend.

At the opening of Friday's session a telegram from C. R. Gray, director division of transportation, United States Railroad Administration, was read. Mr. Gray expressed regret that he could not attend the convention as he had planned. A telegram from H. A. Garfield, United States Fuel Administrator, was also read. Mr. Garfield regretted his inability to attend the convention and promised that the Fuel Administration would work hand in hand with the International Railway Fuel Association.

The meeting on Friday was also addressed by C. E. Allen, deputy fuel administrator of Illinois, who spoke on "The Supply and Distribution of Fuel."

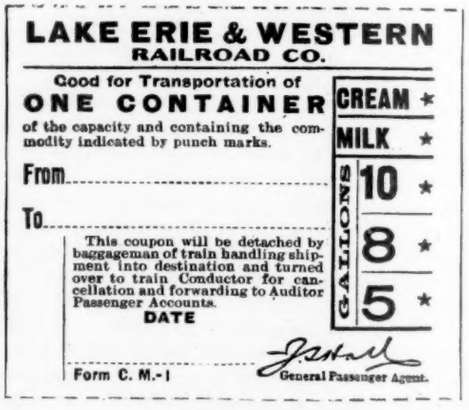
On Thursday evening a meeting was held in the Louis XVI room of the Hotel Sherman at which motion pictures, prepared under the direction of Major E. C. Schmidt of the United States Railroad Administration on the Minneapolis, St. Paul & Sault Ste. Marie, were exhibited. These films showed the results of good and poor methods of firing by scenes on the road and close-ups of the interior of fireboxes. The proper methods of building fires were also illustrated and sections of the films pointed out the need of co-operation by employees in all departments of the railroad in order to secure the maximum economy in the use of fuel. Several copies of these films will be sent out by the United States Railroad Administration and they will be exhibited before audiences of railroad men in all sections of the country.

On Friday afternoon a business session was held at which the following officers were elected: President, L. R. Pyle, fuel supervisor M., St. P. & S. Ste. M.; vice-presidents, C. M. Butler, supervisor of fuel, Atlantic Coast Line; J. B. Hurley, road foreman of engines, Wabash Railroad, and H. B. MacFarland, engineer of tests, Atchison, Topeka & Santa Fe; secretary-treasurer, J. G. Crawford, fuel engineer, Chicago, Burlington & Quincy. Executive committee for two years: R. R. Hibben, assistant fuel agent, M. K. & T.; B. P. Phillippe, coal agent, P. R. R.; T. Duff Smith, fuel agent, Grand Trunk Pacific; A. N. Willsie, chairman fuel committee, C., B. & Q.; for one year: H. B. Brown, superintendent fuel department, L. V.; L. J. Joffray, general fuel inspector, I. C.; H. Woods, fuel inspector, C. & A.

During the meetings addresses were made by Sergeant Brown, a Canadian soldier; Trooper Scott, of the Anzacs, and Private Peat. A detachment of the band from the Great Lakes Naval Training Station furnished music.

A Simple Milk Ticket

Raymond C. Fiscus, chief clerk of the passenger department of the Lake Erie & Western, at Indianapolis, Ind., has devised a new and simplified ticket for use by the baggage department of that road in the transportation of milk, and he has applied for a patent on it. One of the three coupons of this ticket is reproduced in the engraving. Above the coupon here shown is a similar one for use in returning the empty can to the shipping point, and the lower one, of the same size, is used as the selling agent's stub. The matter on the upper coupon and on the


LAKE ERIE & WESTERN
RAILROAD CO.
Good for Transportation of
ONE CONTAINER
of the capacity and containing the commodity indicated by punch marks.
From.....
To.....
This coupon will be detached by baggageman of train handling shipment into destination and turned over to train Conductor for cancellation and forwarding to Auditor Passenger Accounts.
DATE
Form C. M.-1
CREAM
MILK
GALLONS
10
8
5
General Passenger Agent.

stub has been so arranged that the three coupons, being folded together, can all be punched at the same time.

Heretofore, different forms and colors of tickets have been used for cans of different size and for different destinations; and cream tickets have been different from milk tickets. This form answers for all of the varied conditions. Where the traffic is heavy the name of the station from, or the station to, or both, can be printed on the tickets. The ticket is fastened to the can by means of an eyelet in the upper end of the upper coupon; and the upper coupon remains attached to the can until the return journey is completed.

This form has already been adopted by several lines.

Suez Canal Bridge Finished.—The swinging bridge over the Suez Canal at El Kantara, about thirty-five miles south of Port Said, Egypt, has been completed. The bridge affords direct railway communication between Cairo and cities in Palestine.

Activities of Western Regional Director

R. H. AISHTON, regional director of western railroads, Chicago, is the first regional director to take any steps toward the unification of telegraph service. In Circular No. 107 sent to western lines on May 22, he announced that the following wire connections had been arranged for handling the business of the executive and administrative departments of the Railroad Administration. The purpose of establishing these wire routes, he says, is to relieve commercial telegraph companies and avoid the payment of telegraphic tolls by the railroads.

Send messages to the Chicago & North Western general office telegraph office, Chicago, for following:

Director-general department, including car service section, Washington, D. C.; the regional director of eastern railroads, New York City; the regional director of southern railroads, Atlanta, Ga.; and the regional director of western railroads, Chicago, Ill. Routes to New York and Atlanta are open at all times. For Washington, through wire service is provided at 11 A. M., 4 P. M. and 8 P. M., central time.

CHICAGO-PORTLAND, VIA OMAHA

Wire route C. & N. W. Omaha, U. P., O. S. L., Denver, Ogden and Salt Lake; O. W. R. & N. Portland.

CHICAGO-SAN FRANCISCO AND LOS ANGELES VIA OMAHA

Wire route C. & N. W., U. P., O. S. L. Ogden, S. P. San Francisco and Coast Line points, L. A. & S. L. Los Angeles.

CHICAGO-PORTLAND AND SEATTLE VIA ST. PAUL

Wire route C. & N. W. St. Paul; N. P. Tacoma; S. P. & S. Portland.

Wire route C. & N. W. St. Paul; G. N. points their line.

CHICAGO-ST. LOUIS-KANSAS CITY

Wire route—Wabash, St. Louis and Kansas City.
Missouri Pacific, St. Louis, Kansas City.
Rock Island, Chicago-Kansas City.
Santa Fe, Chicago-Kansas City.

CHICAGO-ST. LOUIS-KANSAS CITY FOR BEYOND

St. Louis to Southwestern points via M. K. & T., St. L.-S. W. or M. P. through Railway Exchange Building.

M. K. & T., all points including Houston.

M. P. for T. & P. and I. & G. N. points.

St. L.-S. F. and T. R. R. A. loop or pony wire connection arranged with Wabash effective May 21.

Kansas City M. P., Pueblo; D. & R. G. Denver; connection Denver with Colorado Southern by messenger.

K. C. T. and K. C. S. will later have loop or pony wire connection with M. P.; for present such business can move via Santa Fe or Rock Island through K. C. T. Office.

Santa Fe, all points their line and G. C. & S. F. in Texas.

Rock Island to points Southwest their line, T. & P. Fort Worth and E. P. & S. W. El Paso.

General Service

Railroads not enumerated and having wire connections with routes indicated should take advantage of this service through such connections. To make this arrangement a success it is important messages be handled promptly through relay offices.

Payments—Publications

In Supplement No. 3 to Circular No. 65, issued on May 22, the regional director says: The director general has reached the conclusion that railroad companies will be permitted to charge to operating expenses the customary payments to such publications as Poor's Manual, Moody's Manual, John Moody's Manual, the Financial Chronicle, etc., for maps and subscriptions.

Approval of Contracts

Circular No. R. P. C. 11. issued on May 23, by the western regional purchasing committee, gives the following instructions:

Roads should continue to make contracts for material and supplies when it is advantageous to do so. Contracts should not be made for a longer period than one year, nor contain a clause permitting them to run until notice of cancellation. If it is believed that a contract should run longer than one year, the reasons should be stated and the matter will be taken up with the regional director for approval.

Contracts should conform to the regional purchasing committee's general letters dated April 24 and April 30. Copies of all contracts and extensions thereof now in force which have not been filed, should be sent this committee at once. In submitting contracts for approval, attach a tabulation of the competitive bids, and if the contract price is not the lowest explain why it was accepted. It is realized that the lowest price is not always the most advantageous, but the committee would like to have an explanation in such cases for its information.

An agreement or order for material to cover delivery over an extended period, should be treated as a contract in submitting to the regional purchasing committee for approval. As an example, it might be desirable to place order for 50,000 bbl. of cement to be delivered as required throughout the season. Purchases on approved requisitions for material for current consumption will not be referred to this committee for approval.

Abolishment of District Freight and Passenger Committees

Supplement No. 1 to Circular No. 35, dated May 23, reads: The committee appointments shown in the memorandum accompanying Circular No. 35, dated March 1, are hereby cancelled. It will be understood that these committees will continue with any uncompleted work assigned to them pending or subject to the appointment of committees by the regional freight and passenger traffic committees under authority conferred upon them in Circular No. 88.

Movement Oil and Tank Cars

In a communication to western railroads, dated May 16, the regional director says: Oil interests complain that some roads are not furnishing junction cards covering the movement of their tank cars. In order to reduce tracing of cars to the minimum, it is highly important that care be exercised in car record offices to insure that complete and proper junction movements be supplied all private car line owners.

Iron, Ore and Grain Traffic—Upper Lake Ports

Circular No. 104 issued by the regional director on May 24 is as follows:

Effective at once the following railroad committee is appointed to represent the railroads, and this office, engaged in handling iron, ore and grain traffic at Lake Superior and Upper Lake Michigan ports: W. W. Walker, vice-president of the Duluth South Shore & Atlantic, Duluth, Minn.; W. A. McGonagle, president of the Duluth, Missabe & Northern, Duluth, Minn.; F. S. Elliott, general superintendent of the Great Northern, Superior, Wis.; E. D. Brigham, assistant freight traffic manager of the Chicago & North Western, Chicago; W. E. Tyler, superintendent of the Chicago, Milwaukee & St. Paul, Green Bay, Wis.

This committee will co-operate with committees appointed to represent the iron, ore, grain and vessel interests, to insure expeditious and economical movement of this important

traffic, with the view of conserving both rail and water transportation to the greatest extent possible. Mr. Walker, in connection with his duties as representative of this office at Duluth, handling general operations at that point, will also assume the duties as chairman of this committee, with headquarters at Duluth. Such orders or instructions as may be necessary will be issued by him with the authority of this office.

Conserving Supplies and Repairing Materials and Tools

Supplement No. 2 to Circular R. P. C. No. 10, issued by the regional purchasing committee on May 25 is as follows: Some replies to Supplement 1 to R. P. C. No. 10 do not give the information desired, although they show that attention has been given to reclaiming of material. In order that data may be complete, please furnish the following information:

1. List of points at which you are carrying on general reclamation work, and facilities, buildings, organization and equipment at each point for reclaiming.
2. List of kinds of material you are at present reclaiming:
   (a) By means of oxy-acetylene welding.
   (b) By means of electric welding.
   (c) By means of forging equipment.
   (d) By means of rolling mills.
   (e) By other means.
3. Are the facilities at all central points adequate for the work, or do you recommend additional equipment at any of the points? If so, what?
4. Could any central points with present equipment take care of more work, if desirable that they handle material from other roads in adjacent territory which may not be equipped with the necessary facilities?
5. What suggestions have you to make for reclaiming additional material?
6. Advise what equipment you have in the maintenance of way department for repairing frogs crossings, switch points, etc.; also in locomotive and car department and outlying repair shops for repairing castings, couplers, knuckles, etc.

It is desirable that the fullest advantage be taken of all existing facilities for this kind of work. Those in charge of such work should confer with other lines in their locality, with a view of making such recommendations as are desirable. This report should be in this office not later than June 18, 1918.

Billing Export Freight

Circular No. 110, dated May 25, reads: The freight traffic committee, New York, advise their instructions contained in G. O. C. permits are not being carried out so far as applied to *commercial shipments* destined to north Atlantic ports for export, causing delay to shipments and cars at destination. The principal difficulty is failure to observe the following instructions:

1. Waybills must show the letters "G. O. C." followed by permit number.
2. Bills of lading must show definite consignee, as indicated in G. O. C. permit, and shipments must not be accepted billed to the "order of" any person or firm.
3. Billing agents must require shipper to name the steamship line and this information must be shown on the waybill. (This requirement applies only to commercial shipments for export.)
4. Waybills for *export shipments to the allies* are governed by requirements shown above except that it is unnecessary to include the name of the steamship line on waybills.

All agents should be given complete instructions to avoid delay to this class of shipments at seaboard. For your further information, the following indicates the method of securing G. O. C. permits and the information contained therein:

A shipping permit is secured by consignee by application to the export division, freight traffic committee, north Atlantic ports, Room 800, No. 141 Broadway, New York City. This permit bears a number preceded by the letters "G. O. C."

Information contained in permits is as follows:

(a) Name of party or firm (care of steamship line) and port to which shipment is consigned. (b) Shipper. (c) Point of shipment. (d) Commodity. (e) Quantity. (f) Port destination. (g) Route. (h) Statement as to the earliest and latest dates between which shipments may be forwarded. (i) Waybilling agent is instructed to endorse on waybill the G. O. C. number.

Orders of the Southern Regional Director

C. H. MARKHAM, REGIONAL DIRECTOR of the Southern roads, has issued the following circulars, among others:

Circular letter No. 182 addressed to chairmen of district and local operating committees gives the following advices as information and to prevent confusion and waste of time in committee meetings:

Credits and Collection of Freight Charges: These matters are being given general consideration, with the view of adopting some national rule. Your local committee is not, therefore, expected to act until it receives general instructions.

Milling-in-Transit, etc.: All of these questions are being given general consideration, and as changes are not permissible except through proper tariff publication, it is not necessary for committees to devote time to discussion of these questions.

Reconsigning, etc.: The matter of trap car charges is having general consideration. Trap car minimums should be advanced wherever practicable. Where committees are in doubt as to proper minimum, they should submit recommendation for instructions. Committees should endeavor to minimize use of trap cars either by having shippers substitute drays or loading cars less frequently. Local committees should endeavor to work these matters out, having in mind that the policy of the administration is to meet the convenience of shippers in these matters when it can be done without interference with its regular transportation business. Trap car service is in the nature of drayage, and railroads are not bound to perform such service.

Intra-terminal Switching and Charges: Questions of increases in charges for intra-terminal switching are being considered generally, and need not be considered by your committees. Each committee should make a thorough analysis of the intra-terminal switching services performed within its jurisdiction and prepare and send in a statement in accordance with attached form.

City Ticket Offices and Commercial Freight Agents' Offices: Questions concerning are in hands of separate committee and need not be given attention by your committee.

New Routing Plans proposed, for both carload and less than carload freight, should be submitted for approval before putting into effect.

Four O'Clock Closing Hour: Questions that have been referred to this office are being given general consideration, and further reference need not be made in your proceedings, pending final instructions. As information, at one point the local committee handled the question locally and effected the change.

Special matters on which the committee desires ruling from this office should be taken up separately by letter, instead of being covered only in proceedings of your meeting.

When reporting unification worked out, date effected, etc., proceedings should invariably show amount saved; where not actually known, same can be approximated. In reporting reductions in switching service indicate number of switch engine hours saved, showing separately wages of crew and fuel expense.

Circular letter 190 instructs the roads to expedite the return movement of all empty baggage and express cars assigned to express service to the road originating the traffic. In instances where there is inability to provide necessary equipment to handle perishable commodities in express train service, reports should be made to the office of the regional

director so the proper arrangements may be made to protect such requirements. The circular states that the Food Administration program is reported to be seriously embarrassed by reason of inadequate express car service, due apparently to failure on the part of railroads to return promptly to the owning roads or to express service on their own roads, baggage or express or other equipment assigned to express service in order that schedule car runs may be maintained.

Circular letter No. 192 states:

"There has recently occurred on tracks within the reservation of one of the army camps a very serious derailment to a troop train, resulting in loss of life and very serious injury to a number of soldiers.

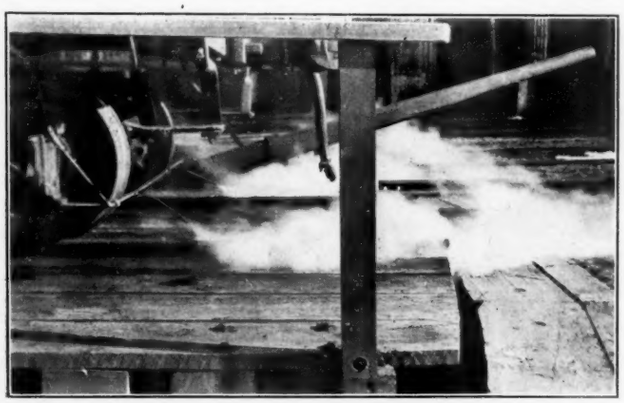
"It is desired that all tracks within army camps which are maintained by the army, over which passenger movements are made, have regular and careful inspection; where repairs are necessary, the situation should be reported to the proper army representative for attention, and failing to receive attention the repairs should be made by the railroad, billing against the war department for the cost."

In circular letter No. 197 attention is directed to the importance of giving prompt movement to corn shipments at this season to prevent heating resulting in losses.

Circular letter No. 198 stresses the importance of giving prompt movement to new locomotives coming out of shops. The roads are directed to arrange so that there will be no delay in transit to new locomotives on their lines.

When Caterpillars Ran on Rails

No story of a trip on the early transcontinental railroad was considered complete without an account of delays due to herds of buffalo or flocks of grasshoppers crossing the track. The buffalo has disappeared and grasshoppers are no longer so numerous as to give trouble; however, there is still one of nature's creatures whose desire for a life on the rail occasionally causes trouble. The McCloud River Railroad runs from Sisson to McGavic, Cal., through a territory where caterpillars exist in large numbers. During the spring these insects climb on the head of the rail and cover it completely. As the caterpillars are crushed under the wheels both the wheels and the rails become so slippery that it is impossible to haul a train or to stop it effectively with the brakes. On heavy grades the locomotives slip and stall and the trains start to slide backward down the hill.



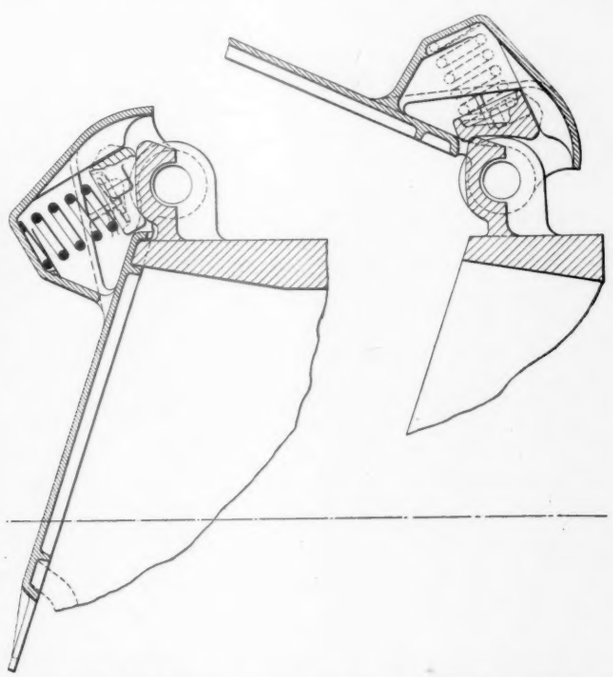
Steam Blowers Arranged to Clear Caterpillars from the Rails

The difficulties of operating trains under these circumstances made it necessary to devise some method of getting rid of the pests. Trenches dug along the right-of-way are often effective in stopping the progress of the pests, but the distance over which they advanced made such a procedure impracticable in this case. Brooms and scrapers on the locomotives proved worse than useless for they crushed the caterpillars instead of removing them. The solution of the difficulty was found in steam jets directed at the rail a short distance ahead of the wheels of the locomotive. By this method the caterpillars were blown 20 or 30 ft. from the rails and about half of them were killed. The others would always return to the top of the rail, however, so it was necessary to equip each engine with blowers. As the locomotives ran both forward and backward steam jets were placed behind the rear tender trucks as well as ahead of the pilot. The illustration shows the arrangement of pipes on the tender. The amount of difficulty caused by caterpillars on the McCloud River line varies from year to year. During some seasons only a few appear, but one spring the trouble continued for about ten weeks.

Joliet Journal Box

A journal box with a new type of lid combining several desirable features is now being manufactured by the Joliet Railway Supply Company, Chicago. The important points of the design of this box are the complete sealing of the outer opening of the box by the lid, the use of a spiral spring for holding the lid in place, and the interchangeability of the standard M. C. B. box lid.

The complete seal on the outer edges of the Joliet journal box, with flanges on the lid both inside and outside, makes the lid dust and water proof. This is made possible by placing the lid operating mechanism beyond the face of the box.



Lid of Joliet Journal Box in Open and Closed Positions

A spiral spring and shoe are placed in a cap at the top of the lid. The shoe bears on the lug, which is of a contour similar to that of the lug on the standard M. C. B. journal box. The arrangement is such that the spring holds the box firmly in either the open or the closed position. In case the original lid becomes broken or lost, the standard M. C. B. journal box lid can be applied.

General News Department

The annual meeting of the Railway Signal Association will take place in New York, September 19 and 20.

A delegation of Colorado Citizens headed by Senator Shafroth called at the Railroad Administration on Wednesday to urge a loan of six million dollars to the Denver & Salt Lake to build a proposed tunnel under James Peak.

The station men of the Grand Trunk have had their pay increased. The amount of the advance has not been published, but an agreement on all points of difference between the company and the employees was announced at Montreal May 24, following protracted negotiations.

A bottle of liquor found in the cab of a Canadian Pacific locomotive, when brought into court at Windsor, Ont., on May 22, was held by the court to be evidence of a violation of the temperance law of Ontario, and the engineman and fireman of the locomotive were each fined $250 and costs.

Fines for running unsafe freight cars were imposed on the Southern Railway in the United States district court at Macon, Ga., May 16, and also one on the Ocilla Southern for using an unsafe locomotive. The offense in each case was the absence of suitable uncoupling chains.

Hon. William G. McAdoo, secretary of the treasury and director general of railroads, went, last Monday, for a brief rest, to White Sulphur Springs, W. Va., at the order of his physician. It is expected that while there he will give some consideration to recommendations for appointments of federal managers of railroads.

Francis A. Bonner, formerly Associate Director of the Bureau of Railway News and Statistics, Chicago, and prior to that railroad and assistant financial editor of the Chicago Evening Post, has become associated with Lee, Higginson & Company, Chicago, in charge of the department of statistics and publicity.

The Kansas City, Mexico & Orient is a railroad over 700 miles long, yet Mr. McAdoo has not taken control of it; and on Monday last, a delegation of citizens from towns along the line appeared before the officers of the Railroad Administration at Washington and urged that the Government take over the road.

The Railroad Administration has an actuary. He is Theodore H. Price, of New York. Circular No. 27, announcing his appointment, says that the actuary is to compile and analyze statistics and make reports concerning various economic problems connected with the functions of the Railroad Administration, which will be referred to him by the director general or members of the staff.

Colonel Henry W. Thornton, general manager of the Great Eastern Railway, is now a Brigadier General in the British Army, having been promoted to that position on his recent return from France. He has been a member of the British Railway Executive Committee since the beginning of the war, and has had charge of channel transport. He went from America to England in February, 1914.

Freight cars passing Columbia, Pa., in the trains of the Pennsylvania Railroad on Sunday, May 12, numbered 9,173, by far the largest movement in a single day ever recorded at that point. This total includes both loaded and empty cars, both westbound and eastbound. For the whole of the first half of May the daily average was 7,868 cars, or 357 more than the best previous record for a month. The records at Lewistown Junction, west of Harrisburg, show similar increases.

Miss Katherine Stinson, the "aviatrix" carrying letters for the Post Office Department (having been appointed special messenger) flew from Chicago, Illinois, to Binghamton, New York, on Thursday, May 23, without a stop, thus breaking all former non-stop aviation records in America. The distance is about 783 miles, and the time was about 12 hours. The best previous non-stop record was 700 miles. Miss Stinson had set out to fly to New York, but she had to land because of lack of fuel.

The University of Illinois, at its summer session, June 17 to August 9, will offer special advanced courses in the mechanics and properties of materials of construction and in materials testing, planned especially for instructors in mechanics, for chemists who wish to fit themselves to take positions involving the physical testing of materials, and for men who wish to fit themselves for positions in commercial or government testing laboratories. The extensive equipment of the Testing Laboratory of the University will be available for this work, which will be under the charge of Prof. H. F. Moore. Taken together, these courses will constitute a short course of intensive training for men who desire to qualify as testing engineers in the government service or elsewhere.

The New York, New Haven & Hartford, has asked the Fuel Administration to send 150 additional cars of commercial coal over that road daily, and has issued to shippers and consignees a notice calling upon them to make renewed efforts to unload cars with the utmost promptness. The Fuel Administration cannot be expected to grant this increase permanently, or to order a greater increase, unless cars are emptied and sent back with the best possible despatch. The circular to consignees gives figures showing that cars are not being released so well as in former periods. All users of coal and other bulky commodities are asked to have their freight shipped regularly, not trying to rush excessive quantities the moment that an embargo is lifted; and attention is called to the necessity of frequent conferences between all concerned so that there may be no misunderstandings.

The aerial mail route between New York and Washington, has completed its second week, but some trips have had to be omitted because of fogs. From the fragmentary reports published, it appears that one set of fliers covers the route between New York and Philadelphia and another set between Philadelphia and Washington. On Wednesday, May 22, there was no start from New York, and none from Philadelphia toward New York, fog prevailing at both places. On Monday, the 27th, no start was made from New York, though the airplane from the south arrived at New York on time. On the 23rd, Lieut. Bonsall, flying in a very large airplane, equipped with a Liberty motor, made the round trip from New York to Philadelphia and return in three hours; and the total time of the northbound trip, Washington to New York, on that day, was given at two hours, fifteen minutes. Except as here noted the schedules of the second week appear to have been carried out. Wherever the weight of the mail has been mentioned it has been from 50 lb. to 160 lb.

Saving $4,200 a Year

Brunswick people will continue to use the old, antiquated, inadequate station of the Atlantic Coast Line, while the new, up-to-date station of the Atlanta, Birmingham & Atlantic will remain closed. The matter has been discussed ever since the new order of things became effective on April 1, when the three roads (including the Southern) were put under the unification system. Brunswick people had only one kick coming, and that was that a real passenger station had been abandoned, while an old one, offering no protection for passengers in the way of sheds, etc., was still being used. Agreeing that the new station of the A., B. & A. affords the most adequate facilities, especially in bad weather, the rail-

road committee says that it would cost $350 per month more to operate the A., B. & A. station, and for this reason, the change can not be made. But it is war time, and Brunswick people will accept the decision without further fight.—*Atlanta Constitution.*

Accident Bulletin No. 64

The Interstate Commerce Commission's quarterly accident bulletin No. 64 comes out only one week behind No. 63, which was noticed in the *Railway Age* of May 24, page 1,300. The total number of persons killed on the railroads of the United States in the three months ending with June, 1917, was 2,389, and of injured 47,443, making the total casualties 49,832, or 1,594 less than in the quarter last preceding. The totals of the three principal classes of persons in the three principal classes of accidents are as below:

Casualties, Three Months Ending with June, 1917

	Passengers		Employees		Other persons	
Class	Killed	Injured	Killed	Injured	Killed	Injured
In train accidents	1	805	83	896	44	68
In train service accidents	42	881	474	10,779	1,619	2,270
In industrial accidents	..	....	100	31,147	26	597
	43	1,686	657	42,822	1,689	2,935

The most notable change as between this and the last preceding quarter is under the head of passengers killed in train accidents—1 as compared with 38. Bulletin 63 included the rear collision at Mount Union, Pa., February 27, in which 19 passengers were killed. A marked falling off in the number of employees killed appears in all of the three classes of accidents; in the first two classes it is to be expected because of the milder weather and more normal general conditions prevailing in the months of April, May and June, as compared with winter conditions. As was noted in connection with bulletin 63, the item "other persons" killed and injured in train accidents includes cases where a train strikes an automobile or a trolley car at a crossing. In the quarter under review there were 31 accidents of this kind, in which railroad property was damaged to the extent of $5,500; non-trespassers killed 23, injured 32. The number of trespassers killed in train accidents was 18.

Comparisons with Quarter Ending March 31, 1917

	Bulletin 64	Bulletin 63
Total casualties	49,832	51,426
Total persons killed	2,389	2,346
Total persons injured	47,413	49,080
Passengers killed in train accidents	1	38
Employees killed	657	842
Total collisions	1,712	1,633
Collisions per million locomotive miles	3.59	3.48
Total derailments	2,554	2,370
Derailments per million locomotive miles	5.35	5.05
Damage to railroad property by train accidents	$3,653,570	$3,078,370
Shopmen worked, hours (Class 1 roads)	320,954,371	317,760,570
Casualties to shopmen per million man-hours	48.60	50.68
Casualties per million man-hours, to—		
stationmen	25.07	24.03
trackmen	22.20	23.00
bridgemen, etc.	27.58	27.60
other employees	17.92	18.03

The bulletin contains reports, made by the Bureau of Safety, on 18 collisions and derailments which were investigated. The last accident bulletin for a whole year (No. 62) was noticed in the *Railway Age* of September 14, 1917, page 462.

The Pennsylvania's Liberal Policy*

I have read your interesting discussion of the use of Pennsylvania station in New York City by other railroads. In justice to the memory and ability of the late Alexander J. Cassatt and to the judgment of the Pennsylvania Railroad management, there are some broader aspects of this whole question of the joint use of passenger terminals which are of particular interest at this time. Every additional step taken for increased use of the Pennsylvania station in New York City is in full accord with this company's policy, and is simply a further vindication of our management. This station has been used in the past not only for trains of the Pennsylvania, New Haven and Long Island railroads (to which the Baltimore & Ohio is now added) but it is the passenger entrance to New York for all of the railroad systems south of Washington. Twenty-eight years ago the Pennsylvania inaugurated plans for bringing directly into New York all of the railroads serving that City, and on an equal footing with each other. We, between 1890 and 1900, perfected, with Gustav Lindenthal, the North River Bridge and terminal project and obtained a Federal charter; but the other railroads would not agree to join, and the Pennsylvania was left to work out its own problem. There is nothing either in the history of our New York Terminal or in the present situation to justify the idea that the use of Pennsylvania station by other railroads could not be brought about, by agreement between the companies, because of divergent railroad ownerships. Yet wide circulation has been given to such misleading assertions.

In the City of Washington you will find that the great Union station there was constructed and paid for jointly by the Pennsylvania and the Baltimore & Ohio; but its use was granted on equal terms to all of the railroads of the South reaching Washington, and they have an equal voice in its management. Further, you will recall that the Pennsylvania through the acquisition of a large amount of Baltimore & Ohio stock, a number of years ago, endeavored to bring about a true community of interests between the two companies, which would produce co-operation, permit the elimination of ruinous competition, and make possible more efficient and convenient service to the public, at the same time assisting to stabilize both companies financially, and enable them to use, for betterments, their surplus over reasonable dividends. Unfortunately, the agitation of those times finally resulted in shaping a public policy which discouraged all attempts of the railroads to introduce co-operative principles into the service of transportation, or to merge or combine their facilities. The consequence was an artificial and undue accentuation of competitive tendencies. To blame this state of affairs upon private ownership, as many newspapers are doing, is obviously unjust in the face of the fact that it was forced upon the companies against the will, and contrary to the efforts, of a vast majority of the owners and managers. If any reasonable criticism can be made against private ownership, it is that it has perhaps offered too many facilities and luxuries to the public, and too frequent train service.

I do not question the right of any newspaper to discuss private ownership vs. Government ownership, as economic policies, and to advocate or oppose either one fairly and in accordance with true convictions; but I resent the continual mis-statement by some newspapers and individuals of the facts concerning private ownership, and the unfair and unmerited aspersions cast upon the motives and purposes with which the railroads have been managed under it. No management will more emphatically endorse than the Pennsylvania Railroad every effort to abolish unnecessary duplication of facilities, and open others to common use, upon equitable terms, where public convenience and economic results justify such action.

*From a letter to The Evening Bulletin, of Philadelphia, from Samuel Rea, president of the Pennsylvania Railroad.

Competition for Labor

The Department of Labor has been requested by the Railroad Administration to assist the latter in preventing the disorganization of the labor market by competing government contractors. Most of the railroads are now hiring their labor through the regular government service. Private contractors holding government contracts have, however, refused to co-operate with the government in the matter of securing labor, and as a consequence are disorganizing the labor market.

Many of the firms mentioned in the protests received from the Railroad Administration are said to have been carrying extensive advertisements in a great many southern papers, to the detriment of both railroads and farms. The Director General was advised by Assistant Secretary Louis F. Post that although the department does not at present possess the necessary authority, it hopes to be able to put an end to this practice in the near future.

Convention of Railroad Police

The International Association of Railway Special Agents and Police will hold a convention at Baltimore, Md., on June 19, 20 and 21, with headquarters at the Emerson Hotel. The secretary is W. C. Pannell, Baltimore.

REVENUES AND EXPENSES OF RAILWAYS

THREE MONTHS OF CALENDAR YEAR, 1918

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Boston & Maine	2,305	$7,989,982	$3,782,794	$13,217,506	$1,749,035	$2,662,446	$98,804	$8,477,494	$392,538	$13,466,641	101.88	—$249,135	$530,445	—$779,580	—$2,392,078
Buff. & Susq. R. R. Corp.	252	559,503	17,513	585,590	81,877	145,226	4,789	245,275	21,560	498,727	85.17	86,863	12,300	74,563	7,204
Buff. Roch. & Pitts.	584	3,190,909	304,897	3,600,351	480,921	1,254,602	45,455	1,662,116	91,429	3,540,067	98.33	60,284	80,203	—20,004	—487,292
Canadian Pacific Lines in Maine	233	608,653	72,097	728,666	110,586	166,349	10,885	575,323	7,950	871,092	119.55	—142,426	28,500	—170,976	—471,192
Carolina, Clinchfield & Ohio	282	907,272	90,901	1,012,858	117,526	193,559	41,897	306,497	42,850	701,313	69.24	311,545	44,400	267,145	—101,947
Central of Georgia	1,918	3,250,628	1,219,816	4,963,505	648,199	788,309	107,948	1,705,355	134,309	3,387,288	68.24	1,576,217	193,932	1,381,494	572,765
Central of New Jersey	684	5,909,360	1,518,451	8,271,149	762,969	1,973,434	67,648	4,351,384	205,932	7,406,655	89.55	864,494	477,209	384,974	1,572,593
Central New England	301	1,087,999	76,587	1,227,502	188,261	207,354	3,732	633,098	23,677	1,060,192	86.37	161,310	53,400	113,889	—187,526
Central Vermont	411	697,013	176,224	972,278	132,571	220,851	23,990	710,683	33,160	1,126,091	125.82	—153,813	52,200	—206,159	—262,911
Charleston & West. Carolina	342	498,705	135,108	672,238	86,097	82,767	12,357	285,253	14,200	480,674	71.50	191,565	27,000	164,565	23,308
Chesapeake & Ohio Lines	2,479	9,963,747	2,094,395	12,965,322	1,679,270	3,047,543	147,975	5,333,584	294,150	10,572,577	81.55	2,392,744	435,000	1,957,324	—1,426,615
Chicago & Alton	1,050	3,140,230	1,074,889	4,546,523	628,331	1,191,015	94,569	2,169,124	109,072	4,227,028	93.97	319,495	116,584	152,151	—904,116
Chic. & East. Ill.	1,131	3,839,931	763,008	5,027,908	634,476	1,794,458	70,602	2,305,498	135,726	4,961,919	93.32	65,991	222,328	—157,181	—1,018,500
Chicago & Erie	2,269	1,648,876	123,847	1,976,939	600,239	384,096	45,928	1,235,930	55,145	2,327,645	117.74	—350,707	120,681	—471,420	—776,520
Chicago & Northwestern	8,094	15,390,184	5,571,199	23,285,837	3,460,451	5,180,457	329,022	12,132,794	577,199	21,833,287	93.76	1,452,550	1,260,000	181,719	—3,515,125
Chic., Burl. & Quincy	9,373	20,963,700	5,690,543	29,212,823	3,267,922	5,888,871	363,910	12,311,615	763,287	22,915,182	78.44	6,297,641	1,449,559	4,848,082	—3,961,755
Chic., Det. & Can. Gd. Trk. Jctn.	60	158,144	27,779	245,154	28,878	58,023	4,547	196,662	6,863	294,793	121.32	—49,819	10,035	—59,959	—87,511
Chic. Great Western	1,496	2,747,789	984,858	4,067,242	465,365	903,650	127,874	1,873,495	117,624	3,524,807	86.66	542,435	170,228	370,484	—304,495
Chic., Ind. & Louisville	659	1,332,009	434,838	1,954,072	237,385	531,699	51,488	934,906	62,849	1,820,454	93.16	133,618	94,664	38,588	—453,992
Chicago Junction	12	.....	.....	760,384	180,655	84,837	4,237	506,691	21,739	879,378	115.65	—118,994	8,105	127,099	90,369
Chic., Milwaukee & St. Paul	10,303	17,541,612	4,484,700	24,740,500	2,588,331	6,776,435	368,976	12,966,415	628,914	23,320,869	94.26	1,419,631	1,549,050	—167,438	—3,785,489
Chicago, Peoria & St. Louis	247	393,626	60,944	477,764	67,446	151,229	16,302	268,843	20,447	524,267	109.73	—46,503	20,250	—66,753	—143,441
Chicago, Rock Island & Gulf	474	743,230	240,071	1,051,495	109,586	156,728	25,954	375,273	28,778	699,969	66.57	351,526	39,465	311,980	51,532
Chicago, Rock Island & Pacific	7,823	13,826,891	5,630,160	21,008,051	2,566,515	4,741,221	376,670	9,553,929	569,965	17,893,417	85.17	3,114,635	1,052,309	2,059,633	—1,385,001
Chi., St. Paul, Minn. & Omaha	1,749	3,549,705	1,313,441	5,241,086	386,674	936,360	76,914	2,914,282	138,141	4,492,331	85.71	748,755	290,780	456,554	—279,980
Chic., Terre Haute & Southeastern	374	795,518	57,362	876,460	102,928	335,450	10,480	411,893	27,601	899,312	102.61	—22,852	43,500	—66,351	—281,733
Cinn., Ind. & West	419	654,105	116,803	749,031	71,149	152,178	20,369	346,450	26,759	617,512	82.44	131,520	27,604	100,908	—45,217
Cinn., New Orleans & Tex. Pac.	337	1,763,714	803,196	2,829,536	245,878	788,642	69,847	1,272,669	64,732	2,458,706	86.89	370,830	115,575	254,955	—530,742
Cincinnati Northern	245	474,235	39,022	526,364	90,117	155,414	8,462	221,483	11,292	486,466	92.42	39,898	22,400	17,495	—56,376
Cleveland, Cinn., Chic. & St. Louis	2,386	9,227,703	2,608,560	12,999,516	1,315,202	2,643,224	222,337	6,012,344	277,876	10,543,797	81.11	2,455,719	514,340	1,940,126	172,213
Colorado & Southern	1,100	2,192,620	449,452	2,840,351	243,506	548,105	29,946	1,038,503	93,080	1,967,860	69.28	872,491	141,000	731,123	—174,076
Colorado & Wyoming	42	85,901	7,868	250,609	20,974	47,089	369	106,041	13,414	187,888	74.97	62,722	13,000	49,712	—73,168
Cumberland Valley	164	705,488	163,684	948,832	95,747	129,906	13,288	397,319	34,852	673,125	70.94	275,706	26,275	249,368	—178,506
Del. & Hudson Co.—R. R. Dept.	878	5,647,097	568,845	6,619,627	775,467	1,970,214	63,523	3,636,826	258,211	6,781,743	102.45	—162,117	199,920	—362,364	—1,295,833
Del., Lackawanna & Western	955	9,885,164	2,068,369	13,445,960	889,112	2,576,668	191,829	6,535,337	283,706	10,587,529	78.74	2,858,430	703,982	2,153,525	—1,751,906
Denver & Rio Grande	2,557	5,323,775	1,008,485	6,722,032	585,404	1,638,577	103,231	2,492,294	160,487	5,062,805	75.32	1,659,228	325,000	1,332,074	—431,432
Denver & Salt Lake	255	232,689	45,199	295,877	125,674	174,459	2,953	189,744	10,231	496,061	168.66	—200,183	27,000	—227,185	—125,999
Detroit & Mackinac	381	208,966	68,099	300,280	44,826	72,836	6,368	156,242	17,431	297,703	99.14	2,578	24,090	—21,512	49,214
Detroit & Toledo Shore Line	80	430,414	.....	434,171	26,046	36,175	4,652	161,881	10,811	239,566	55.18	194,605	29,740	164,865	—75,362
Detroit, Grand Haven & Milwaukee	190	453,000	99,000	666,115	83,958	146,870	13,364	495,290	23,092	762,572	114.48	—96,458	10,332	—106,821	—112,474
Detroit, Toledo & Ironton	441	315,002	25,287	377,633	90,330	191,106	9,200	360,779	27,791	679,204	179.86	—301,571	25,500	—327,085	—363,493
Duluth & Iron Range	284	230,421	59,188	326,360	201,376	211,655	3,364	306,746	41,704	764,895	236.55	—438,535	20,992	—459,569	—97,017
Duluth, Missabe & North	410	295,248	95,613	455,190	338,058	380,640	10,162	384,606	120,023	1,237,916	271.94	—782,726	34,663	—817,389	—280,858
Duluth South Shore Atlantic	601	591,875	207,136	848,945	186,232	153,887	22,509	503,405	25,860	902,444	106.30	—53,499	55,000	—108,499	—254,690
Duluth, Winnipeg & Pacific	175	323,455	79,080	414,822	46,460	69,608	8,576	230,110	16,997	374,318	90.24	40,504	22,333	18,171	—157,925
El Paso & Southwestern Co.	1,028	2,895,353	634,818	3,702,165	324,497	484,033	59,374	1,030,470	97,167	2,016,916	54.48	1,685,248	152,956	1,532,199	—186,637
Elgin, Joliet & Eastern	804	2,855,979	30	3,350,544	569,478	888,333	19,395	1,559,517	84,210	3,120,306	93.13	230,238	152,318	77,920	—575,847
Erie	1,989	11,639,247	2,079,530	15,567,713	2,114,730	5,040,244	241,595	9,452,925	427,470	17,400,690	111.77	—1,832,977	671,144	—7,506,107	—2,759,926
Florida East Coast	764	1,265,018	961,835	2,579,239	219,569	280,935	49,491	765,640	50,951	1,331,579	51.63	1,247,659	114,391	1,132,601	187,810
Fonda, Johnstown & Gloversville	88	63,037	167,158	244,074	26,885	21,556	1,431	82,934	18,688	151,494	62.07	92,580	13,500	79,080	—10,949
Ft. Smith & Western R. R. Co.	253	229,662	68,884	323,646	45,816	83,394	8,153	124,668	17,150	280,971	86.81	42,675	15,000	27,675	8,775
Ft. Worth & Denver City	454	1,309,577	446,712	1,849,890	129,646	350,965	18,179	745,878	57,114	1,310,346	70.83	539,545	64,291	475,250	—28,724
Ft. Worth & Rio Grande Ry. Co.	235	176,688	56,149	284,445	53,464	57,363	6,353	120,498	15,194	252,873	88.90	31,672	9,091	22,117	26,829
Galveston, Harrisburgh & San Antonio	1,360	3,582,552	1,149,774	5,046,162	607,770	677,006	96,239	1,876,518	140,149	3,416,958	67.71	1,629,204	169,500	1,459,019	25,348
Galveston Wharf	13	.....	.....	239,648	3,161	3,027	1,289	72,383	1,989	144,460	60.28	95,188	36,900	58,288	—66,438
Georgia	328	914,477	324,325	1,337,370	106,921	170,969	32,493	597,996	31,838	940,777	70.35	396,593	17,850	378,656	—86,323
Georgia Southern & Florida	402	459,564	265.573	800,670	109,347	163,820	19,727	338,452	28,977	665,592	83.13	135,078	40,806	93,792	—37,509
Grand Rapids & Indiana	569	936,244	318,656	1,380,469	227,575	318,683	28,186	706,635	754,049	1,336,520	96.82	43,948	68,788	—25,097	150,522
Grand Trunk Western	347	1,392,000	359,000	1,920,455	279,751	654,633	51,856	1,136,677	68,176	2,203,716	114.75	—283,262	112,947	—396,289	—570,006
Great Northern	8,255	12,406,559	3,245,328	17,477,865	2,826,385	3,547,837	270,067	9,237,621	395,935	16,483,939	94.31	993,926	134,967	—349,049	—2,971,773
Gulf & Ship Island	307	416,358	127,285	589,498	103,167	94,759	11,001	187,581	30,100	427,279	72.48	162,219	32,128	129,867	—9,811
Gulf, Colorado & Santa Fe	1,937	3,245,703	1,150,466	4,679,728	804,792	701,258	80,315	1,634,949	158,621	3,274,958	69.98	1,404,769	209,124	1,194,191	362,710
Gulf, Mobile & Northern	407	433,321	91,939	552,282	68,122	106,013	15,303	200,225	27,719	417,404	75.58	134,878	33,569	101,299	—23,039
Hocking Valley	349	1,918,671	199,520	2,210,775	303,406	795,673	23,010	1,006,992	60,113	2,188,085	98.97	22,690	149,550	—126,925	—553,874
Houston, East & West Texas	190	359,471	105,391	495,450	72,969	48,263	6,293	204,974	9,974	342,418	69.11	153,032	19,220	133,749	—28,163
Houston & Texas Central	948	1,583,446	429,837	2,170,497	306,364	251,149	44,762	870,054	60,169	1,581,902	72.88	638,596	107,090	530,714	59,109
Illinois Central	4,765	11,488,899	4,261,074	22,427,061	3,489,753	4,774,924	253,205	9,223,725	559,029	18,399,049	82.04	4,028,012	1,201,986	2,818,990	—1,786,415
Indiana Harbor Belt	116	.....	.....	1,061,872	262,550	274,079	4,964	733,178	32,828	1,307,600	123.14	—245,727	26,961	—272,688	—530,398
International & Great Northern	1,159	2,088,826	841,936	3,191,804	369,375	568,710	59,307	1,337,341	100,785	2,426,889	76.04	764,914	90,000	673,655	228,999
Kanawha & Michigan	176	708,992	153,683	891,878	140,001	296,082	7,659	303,378	25,050	772,173	86.58	119,704	53,116	66,587	—31,058

REVENUES AND EXPENSES OF RAILWAYS

THREE MONTHS OF CALENDAR YEAR, 1918, CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Maintenance of		Operating expenses				Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Kansas City, Mex. & Orient	272	$250,657	$32,878	$298,162	$50,356	$107,920	$14,393	$167,397	$19,498	$359,564	120.59	—$61,402	$18,750	—$80,152	—$33,159
Kansas City, Mexico & Orient of Tex	465	257,734	33,073	306,249	52,826	82,408	12,384	156,182	11,545	315,344	102.97	—9,095	15,000	—24,178	1,120
Kansas City Southern	774	2,777,926	492,158	3,516,431	295,810	550,109	67,267	1,302,545	111,351	2,324,943	67.12	1,191,488	170,958	1,020,059	45,613
Lake Erie & West	900	1,671,422	135,262	1,893,064	231,916	436,351	35,690	922,284	53,522	1,679,763	88.73	213,301	75,647	137,244	—387,045
Lehigh & Hudson River	96	429,355	11,293	462,902	60,895	88,666	4,595	233,672	13,537	401,365	86.71	61,537	18,000	43,536	—87,169
Lehigh & New England	296	642,451	4,433	682,359	111,351	162,661	7,408	301,730	22,525	605,844	88.79	76,516	25,525	50,991	—179,847
Lehigh Valley	1,442	9,148,946	1,030,634	11,193,750	1,341,150	2,932,187	197,306	6,852,181	271,085	11,625,503	103.86	—431,753	484,412	—916,844	—2,192,807
Long Island	398	1,024,668	2,203,178	3,632,101	530,766	562,562	27,427	2,030,779	112,897	3,299,113	90.83	332,988	227,916	103,725	—46,226
Los Angeles & Salt Lake	1,164	1,910,984	942,185	3,104,490	486,000	577,931	93,447	1,142,740	68,782	2,422,450	78.03	682,039	189,404	491,681	—310,013
Louisiana & Arkansas	302	335,961	85,091	437,626	67,114	60,911	10,431	143,996	15,521	297,974	68.09	139,651	30,869	108,767	64,948
Louisiana Ry. & Nav. Co	356	531,918	144,554	709,588	83,401	94,915	15,521	297,830	20,820	512,487	72.22	197,101	42,000	155,056	42,472
Louisiana Western	207	664,874	267,669	988,261	85,578	117,920	22,640	237,335	26,443	496,474	50.24	491,787	40,128	451,413	101,459
Louisville & Nashville	5,074	14,871,685	4,726,680	20,814,878	2,388,818	4,320,404	361,288	8,343,365	379,729	15,852,273	76.16	4,962,605	714,778	4,244,011	702,068
Louisville, Henderson & St. L	199	445,653	128,751	602,692	88,875	76,285	17,504	255,937	12,259	451,730	74.95	150,962	11,746	139,050	—44,913
Maine Central	1,216	1,977,023	805,553	3,008,202	638,819	641,582	31,522	1,927,340	89,477	3,328,794	110.66	320,592	204,685	—525,329	—1,025,128
Maryland Delaware & Va. Ry. Co	82	76,422	30,639	111,109	12,155	25,387	4,354	108,898	4,734	155,528	139.97	—44,418	3,276	—47,694	54,690
Michigan Central	1,861	8,764,553	2,857,377	13,145,854	1,598,922	2,517,688	202,194	6,211,592	257,243	10,997,196	83.65	2,148,658	459,000	1,688,197	—39,315
Midland Valley	386	567,773	161,777	764,638	125,103	96,395	8,840	292,002	31,978	554,318	72.49	210,320	21,650	188,625	53,944
Mineral Range	100	259,229	7,291	273,706	49,369	57,027	1,332	165,158	3,387	276,273	100.94	—2,567	9,900	—12,467	—12,401
Minn. & St. Louis	1,646	2,037,238	480,939	2,671,272	384,658	517,554	51,421	1,301,926	71,320	2,327,438	87.13	343,835	144,613	197,433	—317,546
Minn. & International Ry. Co	195	180,030	69,204	264,598	29,027	39,583	1,392	131,751	9,194	210,947	79.72	53,652	13,149	40,502	—57,791
Minn., St. Paul & Sault Ste. Marie	4,227	4,597,937	1,383,468	6,535,653	842,745	1,308,922	112,478	3,364,487	204,307	5,858,698	89.10	676,956	552,204	124,743	—1,367,380
Missouri & North Arkansas	365	214,104	103,821	341,617	68,611	72,866	8,704	155,079	15,824	320,681	93.87	20,936	16,720	3,171	—70,979
Missouri, Kansas & Texas System	1,744	4,695,977	1,616,088	6,737,001	895,333	1,879,533	98,866	2,621,301	210,605	5,749,940	86.35	987,060	278,453	707,922	—467,728
Missouri Pacific	7,301	13,641,113	4,184,383	19,470,927	2,654,871	3,545,193	355,052	8,017,322	459,875	15,088,565	77.49	4,382,362	817,646	3,561,411	.....
Mobile & Ohio	1,159	2,413,357	405,192	3,007,509	382,272	888,896	111,006	1,378,316	95,203	2,855,693	94.95	151,816	128,988	22,278	—644,845
Monongahela	108	484,603	53,107	551,740	155,546	50,567	3,089	229,485	12,587	451,273	81.80	100,467	11,316	89,148	—131,072
Monongahela Connecting	5	.....	.....	451,191	77,824	82,004	1,148	246,160	13,519	420,655	94.23	30,536	6,499	24,038	—118,880
Mo., Okla. & Gulf	332	355,519	82,624	459,692	87,437	111,600	3,883	246,554	24,406	478,602	104.11	—18,911	27,000	—46,115	—74,575
Morgan's La. & Tex. R. R. & S. S. Co	400	1,335,063	413,155	1,867,939	207,929	227,291	32,145	597,993	42,698	1,116,495	59.77	751,445	82,069	668,661	200,803
Nash., Chatt. & St. L	1,236	2,936,502	1,000,154	4,216,713	403,978	803,874	148,686	1,882,425	111,507	3,366,383	79.83	850,330	100,002	749,965	60,053
Nevada Northern	168	543,498	43,563	602,460	52,771	70,136	2,397	146,670	15,547	287,852	47.78	314,608	31,195	282,804	—13,328
Newburgh & S. Shore R. R. Co	15	.....	4	199,299	29,271	68,811	9,865	174,440	20,894	350,310	72.25	134,571	24,552	109,900	—3,487
New Orleans Great Northern	284	367,260	95,906	484,881	55,286	88,973	.....	131,493	8,403	237,978	119.41	—38,678	14,703	—53,381	—7,644
New Orleans, Texas & Mexico	191	432,909	124,214	568,068	79,017	89,765	10,893	153,899	18,243	351,818	61.93	216,250	9,180	206,695	116,218
New Orleans & Northeastern	203	947,859	337,251	1,419,009	146,284	239,261	25,797	552,061	34,477	1,005,331	70.85	413,678	91,567	321,614	13,314
New York Central	6,079	35,068,574	12,356,694	55,049,996	6,845,808	12,970,348	654,491	26,142,567	1,483,402	48,918,820	88.86	6,131,176	2,642,924	3,483,996	—5,975,542
New York, Chic. & St. L	571	3,443,752	201,229	3,772,963	536,617	747,932	120,141	2,056,903	119,510	3,590,797	95.17	182,167	172,500	9,550	—485,485
New York, New Haven & Hartford	2,007	9,025,338	7,766,399	19,451,769	2,480,987	3,560,549	117,177	9,971,030	646,877	17,170,162	88.27	2,281,607	822,000	1,455,830	—2,937,364
New York, Ont. & West	567	1,683,135	223,690	2,182,576	235,854	485,260	23,301	1,195,825	59,352	1,999,592	91.62	182,984	66,221	116,524	—184,649
New York, Philadelphia & Norfolk	121	867,765	235,373	1,219,681	117,445	292,986	25,263	669,041	32,053	1,170,482	95.97	49,199	41,850	7,348	—156,692
New York, Susquehanna & Western	135	626,873	127,245	834,809	94,620	122,265	5,666	570,919	19,221	812,634	97.34	22,175	44,750	—22,575	—151,410
Norfolk & Western	2,085	13,060,103	1,889,113	15,634,688	1,886,854	4,072,234	175,788	6,096,849	324,798	12,600,659	80.39	3,034,030	816,000	2,213,136	—2,960,231
Norfolk Southern	907	897,237	283,114	1,262,054	186,736	189,681	19,572	569,377	58,737	1,024,403	81.17	237,651	47,433	190,144	—205,415
Northern Pacific	6,596	14,740,436	354,553	19,912,620	2,425,061	3,073,907	258,890	8,181,958	404,008	14,478,277	72.71	5,434,343	1,525,223	3,907,345	—2,007,765
Northwestern Pacific	507	532,221	386,107	1,025,100	192,087	127,046	12,902	402,621	28,693	764,524	74.58	260,576	62,856	197,713	83,890
Oregon Short Line	2,311	5,112,242	1,359,518	7,020,536	933,947	1,014,414	87,086	2,084,615	240,360	4,485,474	63.89	2,535,061	476,262	2,058,306	28,415
Ore.-Wash. & Nav. Co	2,065	3,177,851	1,361,572	5,054,408	920,848	682,837	114,676	2,017,580	235,410	4,076,191	.....	978,217	371,734	606,244	—184,332
Panhandle & Santa Fe	709	1,037,657	307,538	1,417,239	189,349	318,746	13,347	487,630	41,915	1,048,661	73.99	368,579	52,296	315,872	—256,275
Pennsylvania Co.	1,754	10,676,481	2,933,381	15,324,617	2,975,085	4,326,650	247,009	8,711,132	495,693	16,946,696	110.15	—1,622,079	855,262	—2,477,415	2,721,386
Pennsylvania R. R	5,284	38,699,312	17,592,550	63,845,576	10,251,860	18,184,721	734,260	33,843,558	1,877,550	66,026,074	103.42	—2,180,498	2,555,109	—4,742,642	—3,168,714
Peoria & Pekin Union	19	61,230	18,112	293,355	33,559	53,174	55	207,443	10,323	304,554	103.82	—11,200	28,403	—39,603	—36,693
Pere Marquette	2,245	3,853,385	722,976	5,085,761	798,512	1,071,437	95,417	2,577,956	181,244	4,730,730	93.02	355,030	154,941	199,544	—258,270
Philadelphia & Reading	1,126	12,255,269	1,735,778	15,038,778	1,378,429	3,750,079	130,935	8,138,010	312,547	13,749,078	91.42	1,289,700	412,500	877,141	—3,648,377
Pittsburgh & Lake Erie	224	5,212,366	507,316	6,174,545	1,026,541	1,431,867	43,182	2,277,756	119,261	4,912,740	79.56	1,261,805	218,400	1,043,404	—365,048
Pitt. & Shawmut	94	271,117	12,522	286,623	60,126	72,092	3,182	101,582	10,966	247,948	.....	38,675	8,828	29,847	—75,916
Pittsburgh & Shawmut R. R. Co	94	271,117	12,522	286,623	60,126	72,092	3,182	101,582	10,966	247,948	86.51	38,675	8,828	29,847	—75,916
Pitts., Cinn., Chic. & St. L	2,398	10,869,835	3,459,944	16,311,383	2,405,146	4,391,658	266,674	8,118,564	449,454	15,796,038	96.84	515,346	688,011	—173,285	268,934
Pittsburgh & West Virginia	63	323,646	26,414	381,584	53,595	109,737	3,290	145,758	20,443	358,919	94.06	22,665	36,686	—14,021	.....
Port Reading	21	286,697	.....	401,555	24,931	54,194	54,194	307,923	3,729	390,895	97.34	10,660	30,000	19,340	—48,647
Rich., Fred. & Potomac	87	452,928	617,070	1,206,767	71,758	156,023	10,647	505,342	26,428	782,633	64.85	424,135	37,903	385,966	—48,616
Rutland	415	583,432	234,691	957,386	127,538	210,776	24,461	551,962	24,129	941,928	98.39	15,458	54,023	—38,571	—188,374
St. Joseph & Grand Island	258	529,232	90,463	654,155	119,039	23,297	8,795	297,318	19,569	529,811	80.99	124,344	25,820	98,503	17,492
St. Louis, Brownsville & Mexico	548	594,909	273,007	946,030	135,275	117,137	28,616	284,317	35,292	600,571	63.48	345,459	29,833	315,003	—108,497
St. Louis Merchants Bridge Terminal	9	.....	1,203	719,492	110,602	71,218	2,692	493,826	16,764	695,102	96.61	24,390	24,000	390	—137,712

REVENUES AND EXPENSES OF RAILWAYS

THREE MONTHS OF CALENDAR YEAR, 1918, CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses							Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.						
St. Louis-San Francisco	4,761	$8,569,549	$4,243,491	$13,820,371	$1,954,153	$3,096,249	$163,528	$5,827,640	$417,491	$11,445,939		82.82	$2,374,432	$704,872	$1,665,072	—$1,832,463
St. Louis, San Fran. & Texas	143	325,977	41,573	389,264	40,930	61,596	5,246	145,689	17,853	271,315		69.70	117,949	5,038	112,669	—75,826
St. Louis Southwestern	1,783	3,771,016	886,076	4,918,790	548,520	896,220	137,131	1,614,317	164,534	3,365,953		68.43	1,552,837	194,147	1,357,963	201,848
San Antonio & Aransas Pass	732	718,926	247,454	1,070,119	137,071	190,505	21,702	517,373	44,503	910,291		85.16	159,829	45,000	114,198	172,243
Seaboard	3,561	5,113,844	2,394,615	8,327,602	794,273	1,122,709	253,629	2,814,082	202,491	5,246,112		63.00	2,557,940	317,489	2,237,769	—895,776
South Buffalo Railway Co	35	132,112		302,501	32,131	48,182	1,499	182,111	4,687	268,610		88.80	33,891	4,200	29,691	—69,880
Southern	6,982	14,884,275	7,609,768	24,586,698	2,646,021	4,200,769	393,377	9,597,633	549,821	17,534,606		71.32	7,052,092	916,973	6,134,795	705,353
Southern in Miss	278	181,449	130,365	340,724	67,235	30,509	7,235	150,929	11,532	267,441		78.49	73,283	27,000	16,277	17,989
Southern Pacific	7,102	22,387,154	8,771,144	34,024,092	4,499,968	5,753,840	476,793	14,839,743	808,028	26,905,911		79.08	7,118,181	1,708,596	5,403,409	—2,452,005
Spokane International Ry. Co	165	164,384	39,824	211,654	34,238	19,765	4,677	71,062	10,945	140,686		66.47	70,968	9,930	61,000	24,771
Spokane, Portland & Seattle	554	1,264,980	460,148	1,836,832	166,644	142,547	18,644	553,597	46,609	940,186		51.19	896,646	216,000	680,445	104,137
Texarkana & Ft. Smith	81	227,083	41,852	292,301	28,690	17,194	8,954	111,629	12,091	176,601		60.42	115,700	27,455	88,243	—14,445
Texas & New Orleans	469	1,167,144	412,949	1,725,373	217,563	274,272	23,072	611,092	35,058	1,214,672		70.40	510,702	65,500	444,734	14,628
Texas & Pacific	1,946	3,889,464	1,478,805	5,806,373	678,481	898,275	99,343	2,456,721	206,907	4,381,168		75.45	1,425,206	260,808	1,162,512	23,882
Toledo & Ohio Central	435	1,494,737	148,375	1,729,460	333,699	491,959	20,011	914,332	34,511	1,799,734		104.06	—70,275	84,955	—155,239	—260,311
Toledo, St. L. & West	454	1,375,540	90,862	1,532,781	256,888	319,106	43,995	660,175	29,048	1,309,124		85.41	223,657	71,200	152,457	151,017
Trinity & Brazos Valley	368	213,237	30,220	259,602	65,697	97,010	5,697	133,316	23,697	325,418		125.35	—65,816	19,158	—84,974	—34,323
Union R. R. of Baltimore	8	303,375	172,055	482,099	28,043	.....	.....	32,836	8,918	69,794		14.48	412,306	25,041	387,265	—14,753
Union R. R. of Pennsylvania	35	.....	.....	1,054,411	123,197	573,492	878	847,427	17,762	1,562,710		148.21	—508,299	16,033	—524,332	—460,677
Utah Railway	100	298,603	1,710	301,567	24,829	28,503	343	67,620	18,934	140,229		46.50	161,338	9,755	151,583	.....
Vicksburg, Shreveport & Pacific	171	368,740	177,138	618,653	59,282	105,829	16,876	194,982	19,479	405,384		65.52	213,269	27,000	186,269	26,505
Virginian	518	1,960,794	128,768	2,247,113	237,950	461,946	18,111	963,012	46,009	1,738,332		77.09	1,514,780	121,495	393,263	—506,542
Wabash	2,519	5,996,445	1,787,897	8,551,051	979,234	1,787,710	199,114	4,815,133	239,976	8,075,533		94.44	475,517	321,257	153,627	1,988,515
Washington Southern	35	153,969	380,565	677,416	48,131	88,164	4,068	262,294	12,544	420,454		62.07	256,962	16,378	240,552	—2,842
Western Pacific	1,007	1,985,806	248,410	2,348,498	371,708	318,819	59,770	812,628	63,241	1,656,730		70.54	691,768	123,049	568,614	97,580
Wheeling & Lake Erie	512	1,924,619	92,444	2,250,188	345,558	570,090	20,743	1,063,943	71,585	2,077,917		92.34	172,271	144,660	27,218	—400,746
Yazoo & Mississippi Valley	1,382	3,593,271	1,075,793	4,888,130	637,883	912,420	52,358	1,703,751	122,078	3,430,607		70.18	1,457,523	184,584	1,272,486	316,766

Traffic News

George A. Perry has been appointed secretary-treasurer of the Transportation Club of Louisville, Ky., to succeed W. T. Vandenburgh, who recently resigned on the occasion of his removal from the city.

The Board of Railway Commissioners of Canada have issued a revised tariff of prices for interswitching, making this accommodation practically universal throughout the Dominion. The term "interswitching" is used to define the movement of loaded freight cars from one road to another for delivery to a consignee within the same city.

The Seaboard Air Line announces the discontinuance of 20 freight traffic offices as follows: Augusta, (Ga.); Boston, Baltimore, Chattanooga, Chicago, Cincinnati, Florence, (S. C.); Greenville, (S. C.); Kansas City, Louisville, Miami, (Fla.); Memphis, New Orleans, New York, Nashville, Oklahoma City, Pittsburgh, Philadelphia, Rochester and St. Louis.

In an order issued on May 22, the Nebraska State Railway Commission ordered the Chicago, St. Paul, Minneapolis & Omaha, the Chicago, Rock Island & Pacific and the Union Pacific, to discontinue within 10 days the practice of making deductions of one eighth of one per cent on small grains and one fourth of one per cent on corn in making settlement for shortage in shipments of bulk grain.

The report of lake commerce passing through the canals at Sault Ste. Marie, during the month of April shows a movement of 422,489 short tons; 356,693 eastbound and 65,196 westbound. Practically all of the eastbound traffic was grain and iron ore, the total for grain being 6,524,676 bu. and of ore 147,188 tons. The heaviest westbound traffic was soft coal, 88,076 tons of which passed through the canals.

Coal Production

A slump in loading on Saturday, after a good five-day performance, caused bituminous coal production during the week ended May 18 to decline slightly, according to the Geological Survey. The total production of soft coal during the week is estimated at 11,732,000 net tons, an average daily production of 1,955,000 net tons, compared with 1,971,000 net tons during the week of May 11. Anthracite shipments during the week increased 6 per cent. The percentage of full-time output lost on account of car shortage during the week ending May 11 was reduced to 11.2.

New Coal Mines Must Be Approved By Railroad and Fuel Administrations

The United States Fuel Administration announces that it will encourage the opening of new coal mines, whenever it appears to its satisfaction that this can be accomplished without taking labor from mines already developed and capable of producing more coal than at present. But as coal is not commercially produced until it is loaded into railroad cars at the tipple, the Fuel Administration is unwilling to approve of the opening of new mines, even when labor is abundant, if it appears to the Railroad Administration impossible or inexpedient to furnish the necessary railroad facilities.

All applications for the development of new mines must go first to the railroad upon which the connection is desired. Copies of the application and accompanying papers will be forwarded to the Regional Director, and he will forward the papers with his approval or disapproval to the director of the division of transportation of the railroad administration. This officer will submit a copy of the application and papers with the recommendation of the regional director to the Fuel Administrator.

Representatives of the Railroad Administration and of the Fuel Administration will, thereupon, agree upon the approval or disapproval.

Commission and Court News

Court News

Uniform Live Stock Contract

The New York Appellate Division holds, in a damage action against a live stock carrier, where there was a uniform live stock contract and a waybill, that the valuations contained in the filed tariffs govern the damages for stock killed, and recovery for injuries to other stock must be in the ratio of the stipulated to the real value.—Dickerson v. Erie, 169 N. Y. Supp., 5. Decided February 8, 1918.

Reasonable Despatch

A carrier received a carload of potatoes on the afternoon of September 1, and undertook to carry them with reasonable despatch. The normal time for delivery was 20 hours. The New York Appellate Division holds that delivery at 7 p. m. September 5, after an intervening holiday and a congestion in its yards due to a threatened strike, was not a breach of its contract of carriage.—Carr v. Long Island, 169 N. Y. Supp., 569. Decided March 1, 1918.

Recovery of Freight Undercharges

A tariff of freight rates duly filed and published and not disapproved by the Interstate Commerce Commission has the force of a statute, binding alike on shipper and carrier. In an action to recover undercharges computed according to the tariff in force, the Kansas Supreme Court holds that it is error for the trial court to receive and consider proof that the commodities shipped were not classified in the tariff according to correct principles.—Atchison, T. & S. F. v. Young (Kan.), 171 Pac., 1156. Decided April 6, 1918.

Alighting from Moving Train

Generally it is negligence *per se* for a passenger in full possession of his senses and faculties to alight from a train while it is in motion. The West Virginia Supreme Court of Appeals holds that the failure of a brakeman, standing nearby, to warn a passenger, standing on the steps of a car ready to alight, did not excuse such contributory negligence. The brakeman had a right to assume the passenger would not alight while the train was moving.—Bartley v. Western Maryland (W. Va.), 95 S. E., 443. Decided March 5, 1918.

Duty as to Perishable Goods

In an action for damages to perishable goods in a refrigerator car, the Oregon Supreme Court holds that if the goods are sound when a carrier takes them from an initial carrier, its whole duty is fulfilled if and when it thoroughly re-ices the car, as reasonably necessary, and with fair diligence takes proper care of it over its line. A carrier of perishable goods is not liable as an insurer. The measure of its duty is to use reasonable care and diligence, considering the nature of the goods.—Daniels v. N. P. (Or.), 171 Pac., 1178. Decided April 16, 1918.

Twenty-eight Hour Law—Proper Feeding

Under the Twenty-Eight Hour Law the federal district court for the Eastern District of Pennsylvania held a railroad entitled to recover for 250 lb. of hay prepared in advance and furnished to each carload of a shipment of cattle, although a quantity of hay amounting to 150 lb. to 250 lb. was placed in the racks in each car by the shipper when the cars were started; it being the statutory obligation of the carrier to feed during the period of rest, and it being the opinion of the Department of Agriculture, stated in a circular issued for the information of carriers, that 250 lb. per car is a proper allowance. The court said: "The whole defense, so far as it has merit, is seen upon analyses to rest upon the unstable foundation of the assertion of a right in the shippers to refuse to feed, and yet reserve to themselves to dictate in what manner the duty shall be performed by the carrier. They have no such right."—Pennsylvania v. Swift & Co., 248 Fed., 315. Decided February 13, 1918.

Rental Contract Exempting Railroad from Liability for Negligence

A man leased part of a right of way as a pasture under a contract exempting the railroad from liability for its negligence. It was alleged that his animals were killed on the track (where there was a view for more than a mile) and that the speed of the train was excessive; that no attempt was made to stop the train. The Georgia Court of Appeals held that wilful or wanton negligence was not shown. The provision of the contract exempting the railroad company from liability for negligence was not void as contrary to public policy.—Hearn v. Central of Georgia (Ga.), 95 S. E., 368. Decided March 12, 1918.

Liability for Undercharge on Freight

The Minnesota Supreme Court holds, in an action by a railroad company to recover from the consignee a balance of the legal freight upon an interstate shipment, he having accepted the shipment, paid the amount of the freight erroneously understated in the bill of lading, and settled with the consignor on that basis, that the defense of *estoppel* is not available; for the consignee is conclusively presumed to have had knowledge of the published legal rate. If the consignee, the presumed owner, accepts an interstate shipment and pays part of the freight, the law implies an agreement on his part to pay the balance to the carrier, where, as here, the carrier, at the time of the delivery of the shipment, has no knowledge of the arrangement between the consignor and consignee as to the payment of the freight, and the consignor then is and ever since has been insolvent.—C., M. & St. P. v. Greenberg (Minn.), 166 N. W., 1073. Decided March 22, 1918.

Employers' Liability Act Decisions

The Michigan Supreme Court holds that the state industrial accident board was without jurisdiction to entertain the claim for compensation under the Workmen's Compensation Act of a widow whose husband, a railroad employee, was killed in working on an interstate train, used in interstate commerce; if the widow was entitled to recover, her only remedy was under the federal act.—Miller v. G. T. W. (Mich.), 166 N. W., 833. Decided March 28, 1918.

The Michigan Workmen's Compensation Act provides that no proceeding for compensation shall be maintainable unless the claim shall have been made within six months after the injury. Where an employee refused to accept compensation under the Compensation Act, but sued under the federal act and suffered nonsuit, the Michigan Supreme Court holds he could not thereafter receive compensation, no claim having been filed within six months, as required.—Schild v. Pere Marquette (Mich.), 166 N. W., 1018. Decided March 27, 1918.

Stoppage in Transit—Seizure of Goods

A shipper of lumber to a company in Chicago, on learning of the company's bankruptcy, stopped the lumber in transit while it was still in the State of Wisconsin. In a suit by the shipper for the value of the lumber the Wisconsin Supreme Court holds that the railroad did not convert the lumber and become liable for its value by moving it from the point where it was stopped to its yards in Chicago, especially as the plaintiff was not injured thereby, though on the arrival of the lumber in Chicago the consignee's receiver in bankruptcy obtained an order from the bankruptcy court for the delivery of the lumber to him, as the bankruptcy court could have compelled the delivery of the lumber wherever it was physically located, the railroad company having officers and agents at Chicago upon whom service of process could have been made. A carrier is not responsible for goods taken from its custody by valid legal process, provided it gives the owner prompt notice of the suit, so that he may have an opportunity to protect his interest. Even though the order of the bankruptcy

court could not be classed as legal process fair on its face, the railroad company was not liable to the shipper, as it had no power to determine the controversy between the shipper and the receiver, and was not bound to determine it at its peril. In turning over the lumber to an officer of the bankruptcy court the lumber was not lost to the shipper, but was turned over to a court having power to determine the controversy.—Morgan v. Chicago & N. W. (Wis.), 166 N. W., 777. Decided March 5, 1918.

Notice of Claim by Shipper

The Oklahoma Supreme Court holds that a claim for the value of a shipment of grain misdelivered by the carrier is sufficiently made to satisfy the requirements of the bill of lading that any claim based on failure to make delivery shall be made in writing within four months after the time for delivery has elapsed, where it appears that the defendant and the plaintiff negotiated a settlement of the plaintiff's claim by letter before the expiration of the four-month period, and that the claim was declined after the expiration of such period on grounds other than that the plaintiff had not complied with the four-month clause of the bill of lading.—Rock Island v. Pruitt (Okla.), 171 Pac., 718. Decided March 12, 1918.

Termination of Liability on Delivery—No Duty to Switch Delivered Goods

The New York Central, in compliance with the wishes of the consignee and in accordance with the custom between them, placed a car containing a shipment of fruit, immediately on its arrival at Utica, its destination, on a public team track for the consignee to unload. The consignee from time to time unloaded part of the fruit, and a week later, offering to pay the charges, requested the railroad to switch the car to the D., L. & W., about one-half mile, so that the car might be sent out over that road. The Central had no tariff covering the switching, and its freight agent, because of that fact, would not move the car. The consignee sued the road for damages. The New York Court of Appeals has reversed a judgment for the plaintiff and granted a new trial for the following reasons: There is no common law rule requiring the railroad to switch or transfer the car. It was not bound to accept goods for carriage beyond the terminus of its line or to carry except on its own line. Contract, express or implied, or statutory regulations or authorized regulations of a public board may modify or make inapplicable this common-law rule. That was not done here. The placing of the car on the team track for unloading, concurred in and acted on by the plaintiff, completed the delivery and terminated the defendant's duty as a common carrier; and thereafter he was not even a warehouseman. The duty of guarding and protecting the car was the plaintiff's. While a railroad is not permitted to cast aside its character as such and transmute itself into an ordinary bailee, a consignee cannot, by a mere request to change, for any purpose, the location of delivered goods, reconstitute the delivery company a common carrier as to those goods. Anthony v. N. Y. C. (N. Y.), 119 N. E., 90. Decided February 26, 1918.

United States Supreme Court

Hours of Service Act

Following its decisions in Rock Island v. U. S. and Chicago & N. W. v. U. S., 226 Fed. 27, 30, the Circuit Court of Appeals for the Seventh Circuit affirmed a judgment of the district court against the Chicago & Alton for $100 penalty for violating the Hours of Service Act by permitting a switch tender to remain on duty more than nine hours. The Supreme Court of the United States has affirmed that judgment. The switch tender was on duty for twelve consecutive hours in a shanty continuously operated night and day where, by the use of the telephone, he received and delivered orders pertaining to train movements—not mere switching within the yard; and in such service mental and physical alertness are of great importance. By permitting this the court holds that the railroad violated both the language and purpose of the act.—Chicago & Alton v. U. S. Decided May 20, 1918.

Equipment and Supplies

Locomotives

THE CHINESE GOVERNMENT RAILWAYS, PEKIN-MUKDEN LINE, have ordered 14 Mikado locomotives from the Baldwin Locomotive Works.

Freight Cars

F. V. B. PRICE, Columbia, Miss., is inquiring for 5 40-ton tank cars.

W. R. GRACE & CO., New York, is inquiring for 5 tank cars for export.

THE BLEYER TANK LINE, Buffalo, is inquiring for 5 to 10 8,000-gal. 40-ton tank cars.

THE NEW JERSEY ZINC COMPANY, New York, is inquiring for 10 to 35 sulphuric acid tank cars.

Signaling

PENNSYLVANIA LINES WEST OF PITTSBURGH.—This road has contracted with the Union Switch & Signal Company for the installation of a 59-lever Type "F" interlocking machine at Logansport, Ind. This machine will have 15 levers operating 16 switches and 8 derails and 25 levers operating 26 signals and 19 spare spaces. Style "B" signals and Type "M" switch movements will be used throughout.

THE JACKSONVILLE TERMINAL COMPANY (Jacksonville, Fla.) is to install a Union electro-pneumatic interlocking at Myrtle avenue (Tower No. 2) the machine to have 122 working levers, 5 spare levers and 8 spare spaces. There will be 63 three-position dwarf signals, 22 suspended bridge signals, 5 high ground signals, 66 single switches and derails, 25 double slip switches (with movable frogs) and 1 movable point frog. The field work will be done by the construction forces of the Terminal Company.

LIGHT RAILWAYS AFTER THE WAR.—At the last meeting of the Essex County Council of England, a resolution was passed urging the Government to include in any scheme for after-war reconstruction a national system of light railways in which adequate provision should be made for the needs of Essex.—*The Engineer, London.*

SOUTH MANCHURIA RAILWAY REORGANIZATION.—The South Manchuria Railway has announced a reorganization of the staff of its general offices at Dairen, according to the report of Consul A. A. Williamson from that city under date of January 17. The principal branches under the new arrangement are: Secretariat (under Dr. S. Kunisawa, director-in-chief); department for general affairs (T. Kawakami, director); mining department (S. Kabayama, director); land department (K. Kaino, director); accounting department (R. Kawamura, director). The Manchuria Daily News quotes Mr. Kawamura, director and acting superintendent, as follows: "The real aim of the reorganization is to give greater attention to all matters concerning the personnel (appointments, promotions, retirements, and disciplining of the company's employees), and also constant inspection of the efficiency of work done by the different units of the company. From this consideration the two new sections of personnel and inspection have been created in the secretariat under the director-in-chief. Since the affairs concerning the personnel demand specially careful consideration and are matters of interest to the governor-general of Kwangtung, under whose direct control lies the South Manchuria Railway, a member of the company's directorate is put at the head of the personnel section. The bureau for general affairs and the bureau of foreign intercourse have been abolished, together with the bureau of technics. The mining section and the geological institute have been amalgamated into the geological section. Assistant superintendents are to be appointed to each unit, opening a way of advancement to the capable and worthy."

Supply Trade News

Ward W. Willetts, vice-president and treasurer of the Curtain Supply Company, Chicago, who was one of the organizers of that corporation in 1899, was re-elected at a recent meeting of the board of directors.

George A. Post, Jr., western representative of the Standard Coupler Company, has received a commission as captain in the Ordnance Department. Mr. Post graduated from Cornell University in 1905 and has been connected with the railway supply field since graduation.

William Dewar Ellis, who was president of the Schenectady Locomotive Works when it was merged with the American Locomotive Company some years ago, died at his home in New York, May 23, aged 63 years. His father, John Ellis, had been one of the founders of the Schenectady Locomotive Works, and Mr. Ellis succeeded his brother in the presidency of the corporation. He retired about fifteen years ago.

Stephen C. Mason of the McConway & Torley Company, Pittsburgh, was elected president of the National Association of Manufacturers at a meeting of the board of directors held in New York, May 23, following the three-day convention. Mr. Mason is the seventh president of the association. He succeeds as president, **Colonel George Pope,** who died April 19 last.

The National Lumber Manufacturers' Association held its sixteenth annual meeting in the Congress hotel, Chicago, on May 20 and 21. About 150 representatives of manufacturers, retail dealers and consumers of lumber participated in the meeting, which considered some of the special problems confronting the lumber industry at this time. Following the meeting an economic conference was held for the discussion of cost economics as related to the production of lumber.

Chicago Pneumatic Tool Company

The following changes in the organization of the manufacturing and sales departments of the Chicago pneumatic Tool Company have been effected by H. A. Jackson, the company's new president: **W. H. Callan,** manager of the company's two compressor plants at Franklin, Pa., has been appointed general manager of plants, with headquarters in Chicago. **W. P. Pressinger,** manager of the compressor and engine departments at Chicago, has been appointed general manager of sales, with the same headquarters. **H. D. Megary,** previously with the Bethlehem Steel Company, South Bethlehem, Pa., has been made assistant to the president at Chicago. **G. A. Rees,** general purchasing agent, has been promoted to manager of purchases and stores at Chicago. These officers will report directly to the president.

W. P. Pressinger

In addition, the following changes have been made in the sales department. These officers, most of whom formerly reported directly to the president, will hereafter report to the general manager of sales and will constitute his staff: **J. G. Osgood,** manager of the pneumatic tool sales division: **C. B. Coates,** manager of electric tool sales division; **H. L. Dean,** manager of compressor sales division, formerly assistant manager of the compressor department at New York; **B. R. Hawley,** manager of engine sales division, formerly assistant manager of the engine department at Chicago; **T. J. Hudson,** manager of the motor truck sales division. All of these men will have headquarters in Chicago. The above appointments were effective May 27.

W. P. Pressinger, who has been promoted to general manager of sales, was born in New York City on September 27, 1871. In 1887, he entered the employ of the Clayton Air Compressor Works, New York. He remained with that company for 13 years, rising to the position of manager of sales. In 1900 Mr. Pressinger organized the New York Air Compressor Company of which corporation he was secretary and general manager. In the following year the company was assimilated by the Chicago Pneumatic Tool Company. Mr. Pressinger has been manager of the compressor department of that company up to the time of his appointment as general manager of sales, as afore-mentioned. He is also president of the Compressed Air Society.

Westinghouse Electric & Manufacturing Company

The Westinghouse Electric & Manufacturing Company in its fiscal year ending March 31, 1918, did a gross business of $95,735,407, over $6,000,000 more than in 1917. The volume of sales for the regular products of the company was greatly in excess of any previous year. The net income available for dividends and other purposes at the close of the year was $15,405,681 as compared with $18,079,889 for the year ending March 31, 1917.

In addition to the regular quarterly dividends at the rate of 7 per cent on the preferred and common stocks a special "Red Cross" dividend was paid, making a total of $5,610,848 for all dividends paid during the year. Special appropriations were made for the protection of inventory book values and to establish a research and development fund. After deducting these appropriations and other miscellaneous adjustments the net surplus as of March 31, 1918, is $26,404,695, an increase of $8,299,396 over the net surplus as of March 31, 1917.

New Plants.—The property and plant account includes expenditures during the year in connection with the new plant known as the Essington Works, located near Philadelphia. This plant, which is now completed and nearly equipped, is operating with a force of about 3,000 men which it is expected will be increased to approximately 5,000 during the year. Contracts with the United States Government for equipment for cargo ships will occupy the capacity of this plant for approximately two years.

Another important improvement completed during the year was a factory at Trenton, N. J., for the manufacture of incandescent lamps. This factory has been in operation for some months.

British Westinghouse Electric & Manufacturing Company, Ltd.—In 1916 a proposal was made to the company's directors for the purchase of the holdings in the British Westinghouse Electric & Manufacturing Company in order that a controlling interest might be transferred from the United States to England. After careful consideration the directors concluded that the commercial position of the British Westinghouse Company would be improved if the control of that company were owned in England instead of the United States, and decided that the sale of the American company's entire holdings was the only satisfactory solution of the situation. Accordingly negotiations were concluded under which its holdings of 4 per cent debenture stock and preference and ordinary shares in the British Company were sold to a syndicate formed in London (Electric Holdings, Ltd.), and payment therefor has been received in 5 per cent prior lien debenture bonds maturing in ten years. These bonds are secured by the pledge of all the said securities sold and certain other additional collateral. This change in the investments was made without change in book values and has, therefore, not affected the balance sheet. Certain new trading agreements of mutual advantage have been entered into between the British Company, Electric Holdings, Ltd., and this company.

Increased Inventories and Notes.—One of the features of the year was the large increases in inventories made necessary by the unprecedented volume of the company's busi-

ness. As a result the company during the year increased the total of its outstanding notes payable by $12,282,301, the total amount of notes payable outstanding as of March 31, 1918, being $30,186,051. This includes $15,000,000 one-year notes and $2,433,551 on account of Liberty Loan Bonds subscribed for by the company and its employees.

Orders on Hand.—As of April 1, 1918, the value of unfilled orders in hand was $147,857,580, of which $110,185,007 was for the regular products of the company. No facilities heretofore employed on regular products are engaged on munition work.

CONSOLIDATED AND CONDENSED GENERAL BALANCE SHEET, MARCH 31, 1918

(Except New England Westinghouse Company)

ASSETS

Property and plant	$41,167,874
Sinking fund	34,177
Investments	19,212,071
Cash	8,918,556
Cash on deposit for redemption of debentures, etc	92,256
Notes	29,150,836
Working and trading assets	60,548,533
Other assets	5,590,075
Total	$164,714,378

LIABILITIES

Capital stock:	
Preferred	$3,998,700
Common	70,813,950
Total capital stock	$74,812,650
Funded debt (Westinghouse Machine Company issues)	6,396,000
Fifteen year 5 per cent notes—issue of 1909, due January 1, 1924	52,500
One year notes—due February 1, 1919	15,000,000
Real estate purchase money mortgages	175,000
Notes payable—current bank loans	12,700,000
subscriptions to Liberty Loan Bonds	2,433,551
Accounts payable	8,016,098
Interest, taxes, royalties, etc., accrued, not due	3,142,206
Accrued dividends	1,309,221
Advanced payments on contracts	10,624,926
Unpaid debenture certificates, bonds, notes and interest and dividends	92,255
Reserve	3,555,276
Profit and loss—surplus	26,404,695
Total	$164,714,378

Trade Publications

LIBRARY CATALOG.—The Portland Cement Association, Chicago, Ill., has issued a 60 page catalog of the books, periodicals and pamphlets in the library of that association on the literature of the cement industry. This library which is open to the public has an up-to-date index containing approximately 65,000 cards, following the standard library practice.

KEYSTONE QUALITY.—The Keystone Manufacturing Company, Buffalo, N. Y., has issued a 40-page booklet describing and illustrating the line of ratchets for both drills and wrenches manufactured by that company. Prices and dimensions for ratchets designed for various purposes are shown as well as the auxiliary parts used. Several pages are devoted to cataloging the various styles of Westcott Adjustable S-wrenches.

CONSTRUCTION EQUIPMENT.—The Waterloo Cement Machinery Corporation, Waterloo, Iowa, has issued a new catalog of 60 pages which illustrates and describes the line of equipment manufactured by that company including concrete mixers, hoisting equipment operated by gas engines, pumps and air compressors. Information is given in sufficient detail to demonstrate the application of the various styles of equipment to special purposes.

RAILWAY WATER SUPPLY.—The Layne & Bowler Company, Memphis, Tenn., has issued a 64-page booklet which contains an exposition of its plan for developing water supplies in the dual role of engineer and contractor, with a contract stipulation guaranteeing a certain water discharge for the source developed. The book is also a catalog of the line of water service equipment manufactured by that company which includes turbine pumps and well screens. The book describes the various types of this equipment with illustrations of typical installations in actual service. The last 8 pages are devoted to tables and formulae of use in connection with water service problems.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company, which was authorized by the Railroad Administration to resume construction on the Osage County & Santa Fe from Caney, Okla., to Pawhuska, as announced in the *Railway Age* of May 24, has also been granted permission to extend this line from Pawhuska to Fairfax Junction, 27 miles further.

The Santa Fe has also been authorized to extend for 30 miles the North Texas & Santa Fe, the track on which has already been completed from Shattuck, Okla., 28 miles west.

CHICAGO, MILWAUKEE & ST. PAUL.—This company will build a new engine terminal at Ottumwa Junction, Iowa. The grading contract for the terminal and for a new freight yard at the same point has been awarded to Roberts Brothers & Peterson, Chicago. The construction of the buildings will be handled by the Witherspoon-Englar Company, Chicago. The new structures will include an 18-stall roundhouse, an 85-ft. terminal, a water-softening plant, powerhouse, water tanks and other terminal buildings. The track work will be done by the St. Paul's own forces. The estimated cost of the improvements to be made at Ottumwa Junction is $500,000.

The St. Paul is also contemplating the extension of numerous passing tracks to permit the handling of longer freight trains on the main line between Chicago and Omaha and between Chicago and Minneapolis. The grading work will be contracted out and the track work will be done by the railroad's own forces.

DENVER & RIO GRANDE.—This company has awarded a contract to the Utah Construction Company for the construction of a new freight and engine terminal at Soldier Summit, Utah. This will consist of division terminal tracks to hold 1,000 cars with a total trackage of 15 miles, including repair tracks, a wye and engine terminal tracks. The engine terminal will contain a rectangular engine house of 24 stalls, a power house, a small shop and store house, oil house, ice house; coal, ash and sanding facilities; a car shop, a station and office building, a hotel and 24 cottages for employees, and section buildings. The work will require 430,000 cu. yd. of grading and 2,500 cu. yd. of masonry.

ILLINOIS CENTRAL.—This company is asking bids on a building for the American Express Company at 14th street and the Illinois Central tracks, Chicago. The structure will be 26 ft. by 300 ft., with brick walls and a composition roof.

THE SOUTHERN PACIFIC PLANS have been completed for enlarging and lining with concrete 17 tunnels through the Tehachapi mountains and work will be started soon. This work will be done by pneumatic methods, the concrete mixer being located at the portal of the tunnel and the material being conveyed to place by air pressure.

SPANISH EXPORTS TO UNITED STATES AND POSSESSIONS.—Total declared exports from Spain to United States and possessions during 1917 were valued as follows: To United States, $35,733,492 against $33,768,822 in 1916; Philippines, $985,330 against $1,022,757; Porto Rico, $887,593 against $851,601; total, $37,606,415 against $35,643,180.—*Commerce Reports.*

JAPANESE RAILWAY COAL NEEDS.—The Imperial Japanese Railways will buy from 300,000 tons to 500,000 tons of coal during the fiscal year 1918 in some foreign market, partly for the purpose of economizing its fuel cost and partly for the purpose of reducing the prices of coal in the home market. The yearly consumption of the Government railways amounts to, roughly, 2,000,000 tons.—*The Far Eastern Review.*

CUBAN RAILWAY CONSTRUCTION.—Work is soon to be begun on that part of the Maniciragua branch, extending from Caunao to Cumanayagua, a distance of 20 miles. This branch goes through very undulating country, and will require a large amount of fill and trestlework, the trestle later giving way to steel. From Caunao to the Bay of Cienfuegos, a distance of 6¼ miles, a separate line, consisting for the greater part of double-track, is now in process of construction, and it is stated that work on the pier terminal will soon be commenced.

Railway Officers

Executive, Financial, Legal and Accounting

L. Moore has been appointed chief land appraiser of the New York Central, with principal office at New York.

H. J. Holt, vice-president and auditor of the Manitou & Pikes Peak, has been elected president, with headquarters at Manitou, Colo., succeeding **C. W. Sells,** resigned.

L. B. Williams has been elected treasurer of the New York, Chicago & St. Louis, with headquarters at Cleveland, Ohio, succeeding **Otto Miller,** resigned to enter the army.

E. P. Clawson has been appointed auditor of the Peoria Railway Terminal Company, in charge of all accounts, with headquarters, at South Bartonville, Ill., succeeding **J. McMahon,** resigned.

Charles C. James, chief clerk in the office of the vice-president and controller of the Southern Pacific, at New York, has resigned to become assistant controller of the Merchant Shipbuilding Corporation, with headquarters at Bristol, Pa.

Irving Herriott, general attorney for the Chicago & North Western, with headquarters at Chicago, has resigned to take up the general practice of law, and has associated himself with the legal firm of Montgomery, Hart & Smith, Chicago.

Operating

W. N. Deramus has been appointed superintendent of car service, of the Kansas City Southern, with headquarters at Kansas City, Mo.

The transportation, traffic and accounting offices of the Dayton, Toledo & Chicago have been moved from Dayton, Ohio, to Covington, Ohio.

W. W. Fuller has been appointed safety supervisor of the Seaboard Air Line, with headquarters at Norfolk, Va., vice **J. L. Query,** assigned to other duties.

P. T. Reilly, who has been appointed superintendent of the Mahanoy & Hazleton division of the Lehigh Valley, with headquarters at Hazleton, Pa., as has been announced in these columns, began railway work in 1888, as a water boy, at Meshoppen, on the Lehigh Valley, and has been in the continuous service of that road ever since. He later served consecutively as freight handler, timekeeper, foreman in the maintenance of way department, assistant yardmaster at Coxton, Pa.; conductor and yardmaster at Coxton, and general yardmaster of the Coxton territory. He subsequently served as assistant trainmaster at Wilkes-Barre, and later became inspector of transportation. In May, 1916, he was appointed general yard inspector, with headquarters at Bethlehem, Pa., which position he held at the time of his recent appointment as superintendent of the same road, as above noted.

P. T. Reilly

H. C. Bixler, superintendent of stations and transfers of the Pennsylvania Railroad, with office at Philadelphia, Pa., has been appointed superintendent of the Manhattan division, with headquarters at New York. This division has been reestablished and will embrace the freight and passenger terminal facilities of the Pennsylvania Railroad in New York City, New York Harbor, including Brooklyn, and Greenville. **J. F. Deasey,** assistant freight claim agent at Philadelphia, succeeds Mr. Bixler as superintendent of stations and transfers, with office at Philadelphia. **F. G. Grimshaw,** superintendent of motive power of the New Jersey division, at New York, has been promoted to assistant to the general manager, with headquarters at Philadelphia; **E. J. Cleave,** superintendent of the Trenton division at Trenton, N. J., has been transferred as superintendent to the Philadelphia Terminal division, with headquarters at West Philadelphia to succeed **A. B. Clark,** who has been transferred as superintendent to the Trenton division to succeed Mr. Cleave; **J. B. Hutchinson, Jr.,** acting superintendent of the Conemaugh division, with office at Pittsburgh, has been appointed superintendent of the same division and **A. B. Cuthbert,** acting superintendent of the Cresson division, with office at Cresson, has been appointed superintendent of the same division.

H. C. Bixler who has been appointed superintendent of the Manhattan division of the Pennsylvania Railroad, with headquarters at New York, was born on March 21, 1868, at Bradford, Pa. He entered the service of the Pennsylvania Railroad on May 17, 1887, as a telegraph operator on the Pittsburgh division. He subsequently served successively as train despatcher and assistant trainmaster and in 1910 and 1911 was trainmaster at the Pennsylvania Terminal, New York City. On November 9, 1911, he was promoted to assistant superintendent of the Philadelphia Terminal division and on May 1, 1916, was promoted to superintendent of stations and transfers with office at Philadelphia, Pa., which position he held at the time of his recent appointment as superintendent of the Manhattan division of the same road as above noted.

H. C. Bixler

W. H. Foster, general superintendent of the New York, New Haven & Hartford Lines West, has been appointed also general superintendent, of the Central New England, with headquarters at New Haven, Conn., vice **G. W. Clark,** assigned to other duties, and **Harry C. Oviatt,** who resigned in October, 1917, as general superintendent of the New York, New Haven & Hartford Lines West, to enter the service of the American International Corporation, has been appointed superintendent of the Central New England, with headquarters at Poughkeepsie, N. Y.

J. A. MacDonald, superintendent of the Prairie du Chien and Mineral Point divisions of the Chicago, Milwaukee & St. Paul, **R. E. Sizer,** trainmaster, and **A. J. Klumb,** master mechanic, with headquarters at Milwaukee, Wis., have been transferred to Madison, Wis.

A. E. Lloyd, superintendent of the Alliance division of the New York Central at Alliance, Ohio, has been transferred to the Western division, with headquarters at Chicago; **E. W. Brown,** assistant division superintendent at Chicago, has been appointed division superintendent, with office at Alliance, Ohio.

Harry W. Forman, the well-known writer on train despatching and train rules, formerly for several years train rule examiner on the Nashville, Chattanooga & St. Louis, has been appointed assistant to the general superintendent of the Western Pacific, with office at San Francisco, Cal. Mr. Forman has been in the service of the Western Pacific for some time past. He entered railroad service in August, 1873. He has worked for fifteen different railroads, and has served as trackman, as a mechanic in the machine shops, and in clerical positions. In the train service he began as brakeman, and was soon promoted to conductor. Next he became

telegraph operator and station agent, from which he was promoted to the position of train despatcher. In this department he has served for many years, and on a number of different roads. Under various titles—chief despatcher, superintendent of telegraph, chairman of train-rule boards, trainmaster and inspector of transportation—he has been constantly engaged in the promotion of good practice and good discipline. He was one of the pioneers in grappling with the difficult, elusive, and never-ending problem of securing for American railroads a perfect code of train rules, and highest standards of efficiency in train operation. His well-known book, "Rights of Trains on Single Track," embodies the fruits of his long and profitable studies of this branch of the railroad art, and is the only thorough discussion of it that was ever published.

Traffic

T. J. Wright has been appointed general agent of the Atlanta, Birmingham & Atlantic, with office at Brunswick, Ga., vice **J. B. C. Blitch.**

John D. Carter, general agent of the freight department of the Atchison, Topeka & Santa Fe, with headquarters at Detroit, Mich., has been appointed assistant general freight agent of the Trans-Oceanic Company, of San Francisco, which operates a steamship line between San Francisco, Seattle and the Orient. Mr. Carter will have headquarters at Chicago.

D. E. Sullivan has been appointed division freight agent of the Baltimore & Ohio, with headquarters at Chicago; **E. C. Law,** commercial freight agent at Toledo, Ohio, has been appointed division freight agent, with office at Toledo; **J. R. Lee,** commercial freight agent at Detroit, Mich., has been transferred as commercial freight agent to Toledo, Ohio, and the position of commercial freight agent at Detroit has been abolished.

J. G. Cantrell, general western agent of the Seaboard Air Line, with office at St. Louis, Mo., has been appointed assistant general freight agent, with office at Jacksonville, Fla., vice **C. A. Carpenter,** who has been appointed district traffic agent, with office at Orlando, Fla. **C. E. Muller,** general agent at Baltimore, Md., has been appointed assistant general freight agent, with office at Savannah, Ga., vice **V. C.** cluded driveway for the ball, with a spring at one end, leads **Tompkins,** transferred. **M. O'Connor,** southwest freight agent at New Orleans, La., has been appointed commercial agent, with office at Montgomery, Ala., vice **F. C. Cheney,** transferred. **C. E. Thomas,** commercial agent at Memphis, Tenn., has been transferred as commercial agent to Richmond, Va., vice **C. L. Parker**, resigned to accept service with another company.

Engineering and Rolling Stock

A. R. Kipp, mechanical superintendent of the Chicago division, of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Fond du Lac, Wis., has been transferred to Minneapolis, Minn.

C. H. Blake has been appointed road foreman of engines on the Southern Kansas division, of the Atchison, Topeka & Santa Fe, with headquarters at Chanute, Kan., succeeding **W. A. Moon,** assigned to other duties.

Elliot Sumner, superintendent of motive power of the Central division, of the Pennsylvania Railroad, with office at Williamsport, Pa., has been appointed superintendent of motive power of the New Jersey division, with office at New York, succeeding **F. G. Grimshaw,** promoted, and **E. W. Smith,** master mechanic of the Philadelphia division succeeds Mr. Sumner.

James B. McClain who has been appointed bridge engineer of the Seaboard Air Line, with headquarters at Norfolk, Va., as has already been announced in these columns, was born in 1877 at Washington, Pa. He began railway work in July, 1906 as masonry inspector on the Seaboard Air Line and two years later was promoted to inspecting engineer. In 1911 he was appointed resident engineer and on January 1, 1917, was appointed assistant bridge engineer, which position he held at the time of his recent appointment as bridge engineer, of the same road, as above noted.

George H. Brown, acting principal assistant engineer of the Eastern Pennsylvania division of the Pennsylvania Railroad with office at Altoona, Pa., has been appointed principal assistant engineer of the same division, and Elmer Irving, acting division engineer of the Philadelphia division, with office at Harrisburg, has been appointed division engineer of the same division.

William S. Jackson, whose appointment as mechanical superintendent of the Erie, with headquarters at New York, has already been announced in these columns, was born on August 12, 1878. He began railway work on August 16, 1892, with the Lake Shore & Michigan Southern and served to July, 1911, consecutively as engine despatcher, roundhouse foreman, and general foreman. He then went to the Interstate Commerce Commission as locomotive boiler inspector, and later was made locomotive inspector at Cleveland, Ohio, until January, 1917, when he entered the service of the Erie as general inspector. In August of the same year he became master mechanic of the Kent division at Marion, Ohio, which position he held at the time of his recent appointment as mechanical superintendent of the same road, as above noted.

Purchasing

M. C. Moles was appointed storekeeper of the St. Louis division of the Chicago, Rock Island & Pacific, with headquarters at St. Louis, Mo., succeeding **F. E. Hartzler,** who has enlisted in the 49th Regiment, U. S. Railway Engineers. **John Stammers** was appointed storekeeper of the Kansas division of the Chicago, Rock Island & Pacific, at Herington, Kan., succeeding **J. E. Thomas,** resigned.

Obituary

Thomas H. Simmons, formerly general freight agent for the Chicago, Rock Island & Pacific, at Chicago, died at his home at Chicago, on May 23, at the age of 69 years, following a long illness. Mr. Simmons was born in Augusta, Me., on May 28, 1849. His railroad career began, when in the spring of 1872, he joined an engineering corps that was running the preliminary surveys for the Omaha & North Western, now a part of the Chicago, St. Paul, Minneapolis & Omaha. In August, 1872, he went to Marshalltown, Iowa, as a timekeeper for the Central Iowa, now the Minneapolis & St. Louis. Subsequently he was clerk and chief clerk in the general freight department and agent at the Eddyville Transfer, Iowa, of the same road and the Keokuk & Des Moines, now a part of the Chicago, Rock Island & Pacific. In November, 1879 he was appointed assistant general freight agent of the Iowa Central, now a part of the Minneapolis & St. Louis, at Marshalltown, Iowa. On April 1, 1886 he went to St. Paul, Minn., as general northwestern freight agent, of the Minnesota & North Western, now a part of the Chicago Great Western, and the Central Iowa, returning to Marshalltown in August of the same year as general freight agent of the Iowa Central.. In the following year he became assistant general freight agent at Cedar Rapids, Iowa, of the Burlington, Cedar Rapids & Northern, now a part of the Rock Island, and in 1893, he was made general freight agent. From June 1, 1902 until May 1, 1903, Mr. Simmons was assistant general freight agent of the Rock Island at Cedar Rapids and on the latter date was transferred to Chicago as assistant general freight agent of the lines east of the Missouri river. On February 1, 1906 he was promoted to general freight agent, working in that capacity until January 1, 1910, when he was assigned to special work. The latter part of the same year, upon his own request, he was sent to Cedar Rapids as commercial agent, which position he held until July 1, 1916, when he was forced to leave the service of the company on account of ill health, and was placed on the pension roll.

RELIEF FUND FOR FILIPINO RAILWAYMEN.—The directors of the Manila Railroad have started a relief fund for the benefit of the employees with an initial appropriation of $15,000, which is two per cent of the total salaries paid last year. Two per cent of each year's salaries, deducted at the end of each quarter, will be added to the fund.